

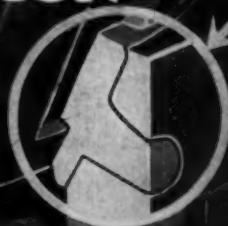
SEPTEMBER 7, 1929

Railway Age

FOUNDED IN 1856

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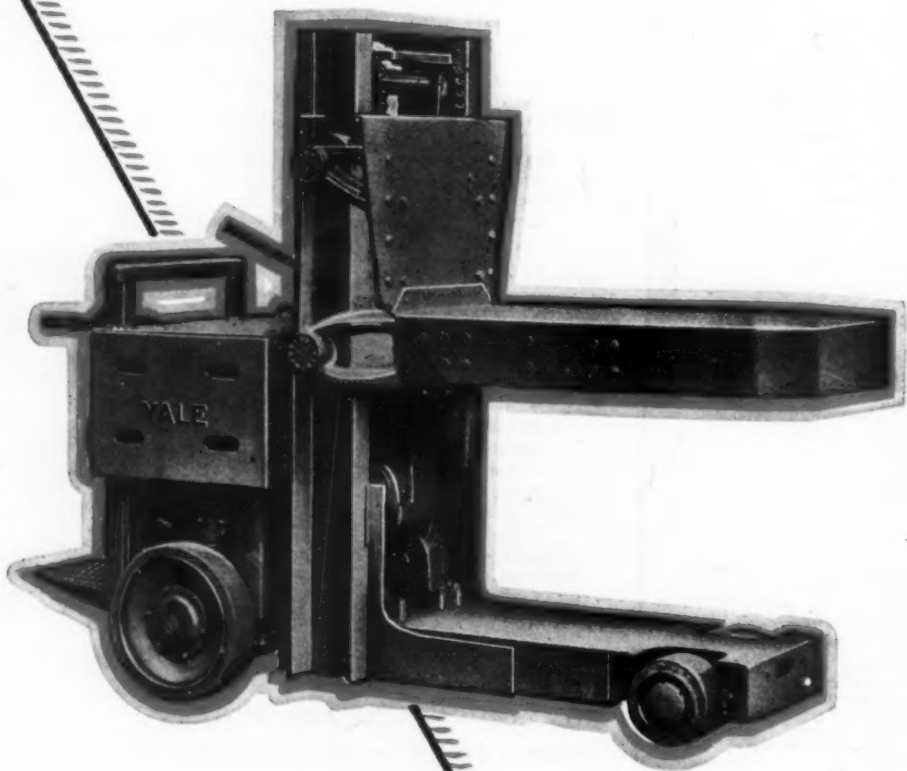
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The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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**THE YALE & TOWNE
STAMFORD,**

Railway Age

Vol. 87, No. 10

September 7, 1929

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Nine Years of Struggle for a "Fair Return"

ON September 1 nine years had elapsed since all guarantees of net return were withdrawn by the government from the railways, following their return to private operation. The Transportation act assured to the railways a policy of regulation of rates which would enable them, under good management, to earn a fair return upon a fair valuation, and they are this year earning relatively the largest net return since 1916. It is interesting to review the progress made during the last nine years in increasing the net return earned until the carriers at last are approaching realization of their management's dream of actually earning a fair return.

What the Railways Are Entitled To

Before comparison can be made of the return to which they have been held entitled with what they have earned and are earning now, it is necessary to eliminate from consideration the Interstate Commerce Commission's tentative valuation. This tentative valuation, which was made in 1920, was arrived at by applying virtually the same principles that were enunciated by the commission in its decision in the O'Fallon case. The commission's method has been rejected by the Supreme court. In consequence, the only definite basis now available for computing the percentage of return that has been and is now being earned is the investment in property that has been reported. A valuation made in accordance with the principles laid down by the Supreme court in the O'Fallon case probably would be larger for the roads as a whole than their investment. It is inconceivable that it would be smaller. Therefore, their investment affords a conservative basis for computing the rate of return that has been and is being earned.

The commission in 1920 held that 6 per cent, and two years later that 5¾ per cent, would be a fair return. A change in the basis of valuation does not change the rate of return to which railroads and public utilities are entitled. If the Supreme court should hold that a valuation made by a regulating body was too low, and the regulating body could, while increasing the valuation, reduce the rate of return allowed to be earned, the purpose of the court's decision would obviously be defeated. The constitutional requirement that a fair percentage of return shall be allowed to be earned is as binding upon regulating authorities as the requirement that the

basis of valuation on which it is computed shall be fair. Therefore, it is a reasonable conclusion that the minimum return to which the railways have been entitled during the last nine years has been 6 per cent for two years, and 5¾ per cent for seven years, upon their property investment. This statement must be qualified by recognition of the principle that their right to earn a fair return is conditional upon their not charging rates which will be burdensome to traffic.

A \$3,000,000,000 Deficiency in Return

How near have the railways come to earning a fair return? From September 1, 1920, to the end of 1921, the Class I roads as a whole earned less than 3 per cent, or about \$920,000,000 less than a fair return. In 1922 they earned about 3.6 per cent, or approximately \$465,000,000 less than a fair return. In subsequent years they failed to earn a fair return by approximately the following amounts: 1923, \$315,000,000; 1924, \$350,500,000; 1925, \$238,000,000; 1926, \$184,000,000; 1927, \$358,500,000; 1928, \$278,000,000. Their nearest approach to a fair return was made in 1926, when they earned about five per cent. The net operating income earned in the first half of this year was substantially larger than in the first half of any previous year, but it does not seem probable that the increases made in July and August were relatively as large as the increase made in the first half of the year. The *Railway Age* estimates the return earned in the first eight months of this year at the annual rate of 5.3 per cent, which would make it for these eight months about \$72,000,000 less than a fair return. This would make the deficiency under a fair return incurred during the entire nine years amount to about \$3,180,000,000. The average return earned throughout the entire period was about 4.3 per cent, or approximately 74 per cent of a fair return.

In the period of nine years the eastern group of roads has earned an average of about 4.4 per cent, or approximately \$1,179,000,000 less than a fair return; the southern group (including the Pocahontas lines), about 5 per cent, or approximately \$275,000,000 less than a fair return, and the western group about 3.86 per cent, or approximately \$1,726,000,000 less than a fair return.

The policies of regulation and management which have caused the railways to produce these financial re-

sults afford interesting illustrations of the way in which the affairs of industries subject to government regulation may be conducted. It need hardly be said that the governmental policy of regulating railway profits was not adopted at the solicitation of the railways, but in response to a public demand that they be prevented from earning too much. The courts having held that their profits could be regulated, but that they could not be restricted to less than a fair return, the railways did favor legislation which would direct the Interstate Commerce Commission to so regulate rates as to enable them to earn at least a fair return.

The country has now had about seven years of unusual prosperity; but never during this time has there been made a single important readjustment of rates for the express purpose of enabling the railways to earn a larger return, although throughout the period they have been earning less than a fair return. Nevertheless, their net operating income has been gradually increasing, in spite of occasional setbacks, until at last it promises, in 1929, closely to approach a fair return. They have lost passenger business. Their wages and taxes have been increased and their rates have declined. Their total earnings thus far this year have been less than in 1923. Their net operating income has increased because good management has skillfully invested large amounts of new capital and made improvements in methods with the result that the economy of operation has been constantly increasing.

Before and Since Government Operation

The average percentage of return on investment earned in the nine years before the adoption of government operation was larger than the average earned during the last nine years, but the investment made during the latter period has been about the same, and has resulted in much greater improvements in service and economies in operation. While the prices of railway stocks declined during the former period, they have increased during the latter.

One explanation of the greater improvement in service that has been secured during the latter period with a no larger increase in investment is that there has been a smaller increase of traffic. Another is that the railways have received co-operation from shippers that they did not receive before. The general tendency of the investment made was to decline before the adoption of government operation, and has been to increase since it was abandoned largely because in the former period the general trend of net return was downward, while in the latter period it has been upward. Furthermore, the railways year by year have become more conservatively financed—that is, their investment has constantly become larger in proportion to their capitalization—and, in consequence, any given percentage that is earned upon investment constantly produces a larger net income per share of stock. This is one of the reasons, in addition to the present unprecedented condition of the stock market, why railway stocks are selling at higher prices than ever before.

The increases that have occurred in railway net return within the last nine years, and the relatively large return being earned now, are gratifying to those who realize the extent to which the prosperity of the railways contributes to the prosperity of the country. It should be remembered, however, that they have attained their present measure of prosperity only after a long period of adversity, and as a result of extraordinarily courageous and efficient management. It should also be borne in mind that the present is a period of unexampled prosperity, and that, in spite of this, the railways are still earning less than $5\frac{3}{4}$ per cent upon a property investment that undoubtedly is less than a fair valuation would amount to. They will have to earn even more in good years than they are now if, on the average, in both good and poor years, they are to earn a fair return.

Increased Tonnage Per Train

THE million-car mark in weekly freight loadings was reached for the first time in August, 1920. At first these million-car weeks were few, and they were marked by congestion, delays and car shortages. Now the railways handle a million cars a week for months at a time, without delays and with surplus cars available. One of the prime causes contributing to this improved showing is to be found in the increased tonnage per train, which has not only aided in the development of fast and dependable schedules, but has materially increased the capacity of the railway plant, without the necessity for undue expenditures for new facilities.

With the increased freight business that the roads have been called upon to handle they would have been hard pressed to move the traffic if they had not increased their tonnage per freight train. The sums that it would have been necessary to have invested to have provided facilities adequate for handling the traffic by means of an increase in the number of trains operated are staggering.

However, this saving of capital has been by no means the only benefit derived from the successful operation of longer trains. Productivity of plant and man-power have increased, as is evidenced by the fact that fewer road freight engines and fewer road crews are producing a much greater gross ton mileage.

Within certain limits, increased tonnage per train proves highly efficient and economical. The requirements for such operation include the ability to accumulate sufficient tonnage in a relatively short time. Delays are not tolerated by the shippers nowadays, nor by the railroads, either, for that matter, and the increased tonnage plan must not conflict with the rendering of fast and dependable service. Adequate power units, that is to say, power units of sufficient capacity to handle the longer trains at a reasonable rate of speed, are essential, and the track must be maintained in such condition as to permit the safe operation of this heavier power. Then, of course, longer passing tracks and

adequate terminal facilities are required to handle the longer trains.

Assuming, however, that these conditions can be met on any given railroad, there is hardly anything so productive of efficiency and economy as longer freight trains.

New Uses for Signaling

WITHIN the last few years many improvements have been made in signal and interlocking devices which have enabled this equipment to accomplish results not heretofore considered possible except by manual attendance locally. When mechanical interlocking was the only means of operating switches or signals, the extent of the territory that could be controlled from one point was limited by the distance that such a unit could be operated by a pipe or wire line. These limitations were not eliminated after power interlockings were developed, the principal restriction then being the voltage drop in the power circuit from the tower battery to the switch. The expense of extending the power circuit or air lines, as well as the control and indication wires, was a factor to be considered and, in addition, there was the desirability of limiting the plant to the range of vision of the towerman.

About ten years ago the low-voltage switch machine was developed to operate from a smaller battery located at the switch, thus removing the limitation as to the transmission of power for operation, but leaving the necessity for extending the wires for the control and indication circuits. About this time the illuminated track was developed to indicate, by means of the track circuit, the exact location of trains with respect to the switches and signals so that it was no longer necessary to limit the towerman's control to his range of vision.

With these improvements available, several roads installed power switch machines with signals to direct train movements at outlying junctions or ends of double track. The principal limitation of such installations was the expense for the line circuits and the complicated lever and control equipment. To remove these limitations, one of the greatest accomplishments in the development of signaling was brought out in the form of a simplified control permitting the operation of a switch and the signals at a layout by means of one wire. The first extensive installation of such a system was placed in service only two years ago. Since that time it has successfully demonstrated the practicability of one man directing train movements by signal indication without written train orders, on as much as 40 miles of busy single track. Further studies have resulted in the development of circuits requiring only two or three wires for the control of several switch and signal layouts scattered over an entire division.

These systems of simplified control were developed and first applied for the control of switches and the direction of train movements by signal indication on

single-track lines. However, this development has also brought about an entire reconsideration of the utility of signal and interlocking equipment, and the system is now being used for directing train movements in either direction on each track of multiple track lines. Also, the control of two or more small interlockings has been combined in many cases, so as to reduce the number of levermen required, while outlying switches at the ends of double track, junctions or yard entrances are being controlled remotely from existing interlockings or offices, and manual block signals at intermediate stations are being controlled remotely. Therefore, roads that are making a study of operating conditions now have at their service modern signaling equipment controlled by these simplified circuits which will solve operating problems at many locations.

Railway Construction Activity Continues

DURING the month of August the construction of more than 1,100 miles of new lines was reported in the construction news columns of the *Railway Age* as having been authorized or contracted for by the railways of the United States and Canada. During the same month, one union station project was announced and preliminary contracts were let for another, which will involve the expenditure of more than \$40,000,000. The authorization of other construction has continued at a correspondingly high level, a single road having announced or let contracts for projects during the month that will involve expenditures of upwards of \$55,000,000. In addition the total cost of other miscellaneous projects, involving the construction of buildings, bridges, freight terminal facilities and line and grade revisions, announced or placed under contract during the month, exceeds \$25,000,000.

This is not a sudden spurt of activity late in the summer, for as early as last June the Bureau of Railway Economics made public the results of a survey of capital expenditures authorized by the Class I roads of the United States alone during the first three months of the year, which showed that the authorizations for roadway improvements during the first quarter were 43 per cent greater than during the corresponding period of last year. This increase has continued, with the result that improvements now under way equal, if they do not surpass, the high average of recent years.

It is improvements of this character which provide added capacity at congested points, eliminate slow orders by providing stronger track and structures, and permit the operation of heavier trains at higher speeds, and which are enabling railways to effect such marked economies in the handling of traffic, and thereby reduce operating expenses. The progress that has already been made in this direction is a token of what can still be accomplished by following similar policies.

The New Hoosac Tunnel

*Changes in
equipment
and oper-
ation
dictated
by 17
years'
experience*



Daylight View of Tunnel Taken by the Light of the Setting Sun

By Louis C.
Winship
Electrical
Engineer,
Boston
&
Maine

NINETEEN hundred eleven marked the electrification of Hoosac Tunnel, which at that time was the longest tunnel in America. Notwithstanding the fact that rapid progress has been made, not only in the length of railroad tunnels but also in their electrification, it is of interest to review, and consider the changes which experience has indicated and the results of an operation which has continued over a period of eighteen years.

Hoosac Tunnel, located in the Berkshire Hills district of northwestern Massachusetts, pierces the high point in the watershed between the Hudson and Connecticut rivers, and through it passes the Fitchburg division of the Boston & Maine. This division is of trunk line importance and its western terminal—Mechanicville—Rotterdam Junction, N. Y.—is one of the most important gateways of New England, through which, in busy periods, move upwards of 2500 cars in a twenty-four-hour period.

Reasons for Electrification

Shortly prior to the time that electrification was contemplated, the tonnage and power requirements had increased to a point where the restriction to the free flow of traffic with steam operation, together with the discomfort of passengers in their movement through the tunnel, was an effective argument for a change in the method of operation. The successful operation of the New York division of the New York, New Haven and Hartford with single phase energy at 11,000 volts, 25 cycles, indicated a similar installation.

Original Installation

Little precedent for tunnel construction at this voltage existed and porcelain insulation with a flashover value of 300,000 volts was used from which was suspended a copper messenger carrying, by means of bronze hangers, two contact wires lying in the same horizontal plane.

The construction in the electric zone outside of the tunnel followed what was then considered to be the best practice.

A power plant was built to serve both the Boston & Maine and the Berkshire Street Railway and the delivery of power to the railroad was made over a two-mile transmission line at a point near the western portal.

Five Baldwin-Westinghouse 1-B + B-1 articulated type locomotives made up the original motive power equipment. These were designed to develop 18,000 lb. tractive effort continuously at 28 m.p.h. and a starting tractive effort of 54,250 lb. The electro-pneumatic control provided for either single or multiple operation. The locomotives were used for the movement of both passenger and freight trains, the procedure being to attach the electric locomotive ahead of the steam locomotive which was moved idle through the tunnel with the train.

With the electrification came the signaling of the tunnel tracks with a division of the single tunnel block into three blocks and a consequent speeding up of train movement.

Corrosion of Overhead System

The corrosion of the messenger wire and hangers which was produced by the gases escaping from the steam locomotives had progressed to such an extent by 1921 as to make a replacement necessary. This replacement was made largely "in kind," the messenger being modified by the addition of an impregnated covering to which, after installation, a coat of heavy paint was applied. The hangers and the top of the trolley wires were also painted.

Similar corrosive action made necessary the replacement in 1922 of certain sections of the messenger and hangers outside of the tunnel. In this replacement ferrous material gave way to non-ferrous alloys.

With the development of the water power of the

Deerfield river by New England Power Company, a transmission line was built from the east portal of the tunnel to its Number 5 Station situated on the river about three miles above the tunnel and the power load was transferred to its system in 1913. Water is supplied to this power station by means of a diversion dam located three miles upstream and carried along the side of the mountain through tunnels, canals, and conduits to the surge chamber. From the surge chamber the water, under a normal head of 235 ft., operates the three 8,000-h.p., horizontal, single-runner hydraulic turbines. Each turbine drives one 60-cycle and one 25-cycle generator, the rotors of which are mounted on the same shaft. The capacities of these generators are 6120 kv-a. and 4200 kv-a. respectively.

Two huge reservoirs, one at Somerset, Vt., 27 miles above the Number 5 Station, the other at Davis Bridge some 20 miles nearer, insure a continuous power supply. These reservoirs have a combined capacity of 58 billion gallons, sufficient to generate 130,000,000 kilowatt hours. If for any reason the flow from these reservoirs is temporarily interrupted, continuity of service would still be maintained through the electrical connection between the Number 5 Station and nearby stations which make possible the operation of the 60-cycle part of the generating unit as a motor with a consequent delivery of 25-cycle energy.

Two additional Baldwin-Westinghouse locomotives of the original type were added in 1917, and seven now make up the entire equipment. Practically all of the locomotive maintenance is carried on at the North Adams electrical repair shop which is within the limits of the electric zone. One locomotive is withdrawn from service each year for a general overhaul and the lighter work follows a definite program. So successful has been this nearby maintenance and so reliable the type of locomotive equipment that it has been possible to meet an operating schedule which requires each of the other six locomotives to be in service for a part of each 24-hour period, the operation being single or in multiple as train weights indicate.

Motor Ventilation

Due to the atmospheric conditions in the tunnel, it was found desirable to change the roof construction to increase the insulation of the pantagraph. It was also found that dirt accumulated in the motor ventilating ducts to such an extent as to reduce the amount of air

blown through the motors. For this reason and to aid in moving heavier trains, it was found expedient to increase the size of the blowers and to add air filters. Individual overload trips were found to be of material benefit in protecting the traction motors.

In 1926, as a part of a movement to increase tunnel clearance to a point where the largest freight cars could be accommodated, the trolley system was raised 4 in. to a point 16 ft. 3 in. above the running rail and the equipment line was fixed at 15 ft. 10 in., which allowed for only 5 in. between the trolley wire and the moving load.

Present Train Operation

In 1929, as a further step towards the expedition of train movement, the electric zone has been resigaled in

Statistical Information

POWER	
11,000-volt, 25-cycle, single-phase	
TUNNEL	
First proposed	1819
Commenced	1851
Completed	1875
Total length	25,081 ft.
Grade per mile	26.40 ft.
Total length of brick arching	7573 ft.
LOCOMOTIVES	
1-B + B-1 articulated type	
Length of cab	43 ft. 6 in.
Width of cab	10 ft. 2 in.
Height of cab	8 ft.
Total height of loco, overall	15 ft. 2 in.
11,000-volt, 1350 kv-a. railway type air blast transformer.	
403-A single-phase, 25-cycle, 368-volt series motors	
Gear ratio 22:91	
Max. safe speed, 35 m.p.h.	
Continuous hp. developed	1352
One-hour hp.	1360
Tractive force 18,000 lb. continuously at 28 m.p.h.—factor of adhesion	
8.3 per cent	
Tractive force 18,480 lb. hourly rating at 27.6 m.p.h.—factor of adhesion	
8.5 per cent	
Tractive force 54,250 lb. maximum under favorable conditions—factor of adhesion 25 per cent	
Trucks—2 per loco. connected with articulation link	
Each truck consists of—2 pair of 63 in. driving wheels	
1 pair of 42 in. radial drag wheels	
Total weight of locomotive	265,500 lb.
Weight of electrical equipment	118,000 lb.
Weight of mechanical equipment	147,500 lb.
Total weight on drivers	217,000 lb.
Weight per driving axle	54,250 lb.
Weight per guiding axle	24,250 lb.
OPERATION (Maximum day)	
Freight trains	37
Cars	2423
Gross tons	107,592
Cars per train	65
Tons per train	2,900
Passenger trains	12
Light moves	14

such a way as to divide each track in the tunnel into five blocks and to provide for movement on each track in



The "Pathfinder," a Fast East-Bound Freight Train—The Steam Locomotive with Fires Banked, is Left in the Train and Drawn Through the Tunnel by the Electric Locomotive

either direction. Similar signaling has been applied to the main tracks outside of the tunnel with a shortening of blocks and the provision for protection in both directions. With this addition, two trains may move through the zone at the same time and in the same direction without delay to either and it is now not unusual for the "Minute Man" to pass a 4000-ton freight train nearly 2000 ft. below the Berkshires as they both move eastward into New England.

Train Control Equipment

The resignaling includes the installation of train control equipment, so applied with respect to the electric locomotive as to prevent the accidental passing of a signal set at danger.

All movements in the zone are controlled by a train director located at West Portal who has before him not only the picture of the situation with respect to the location of the trains, but the picture of the power load as well. The second picture is drawn by a remote metering equipment which transfers it over one of the local telephone circuits from the graphic wattmeter at East Portal.

The contrast between the tunnel of 1900 and the tunnel of 1929 is striking. On the one hand, inconvenience, danger and delay; on the other, convenience, safety and expedition. Hoosac Tunnel is no longer a restriction to the flow of traffic. It is in effect a four track section of a double track line.

Telephone Service on German Trains

By R. Bernhard
Berlin, Germany

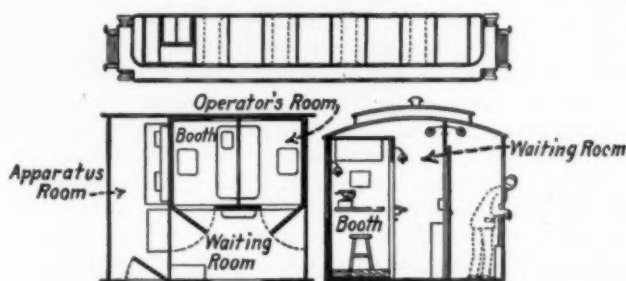
TRAIN telephone service was first tried experimentally in Germany in 1905. The Squire system of wired wireless telephony was used. Regular telephone service was open to the public on fast trains between Berlin and Hamburg, a distance of 171 miles, in 1925. At present, 400 miles from Berlin to Munich are under construction.

Three different types of messages are sent: The normal call from a passenger on the train to an outside station, the call from one train to another, and tele-

grams. The average cost of a telephone call is about one dollar and the charge for telegrams about ten cents a word. This does not exceed the cost of long distance telephone calls or telegrams for the same distance. To reduce the necessary sending energy, the telegraph or telephone wires which parallel the railway are used as carriers to guide the high frequency waves employed. These wires also serve to keep the message from being broadcast. If they were not used, the energy requirement for distances up to 200 miles would be about 2000-watts.

A dwarf antenna is used which is kept inside the clearance diagram and consists of four copper wires extended along two cars, at a distance of about 16 in. above the roof. No interference with the regular duties of wires along the track, which the carrier current is using, has ever been noticed. The distance of transmission from the car to the wires through the air is about 16 ft.

To permit Duplex operations; that is, to separate the transmitted and received messages, two wave



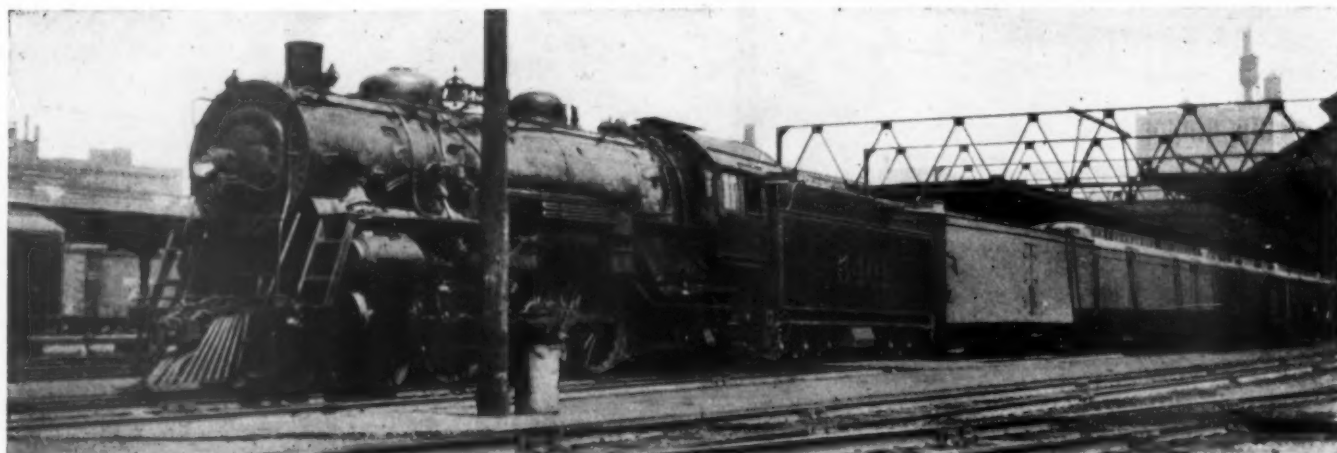
Plan of Car and Enlarged Plan Showing Space Occupied by Apparatus and Section of Car Through the Telephone Booth

lengths between 2000 meters and 5000 meters are selected for each train. These wave lengths give the best results for wired wireless purposes.

In addition to the wayside stations in Berlin and Hamburg, there is a third located centrally between the two cities. These stations make the connection between the carrier current telephone and the regular wire telephone lines.

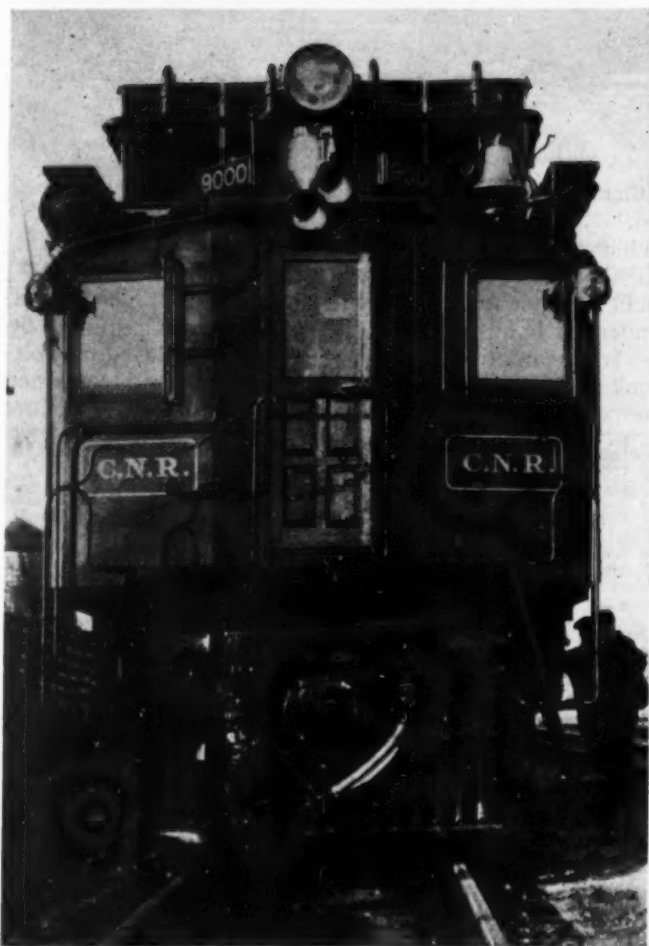
The telephone booth, the operator's room, waiting room and apparatus room are installed in two compartments of the car. The set is normally operated by a telephone girl without special knowledge of wireless telegraphy.

* * *



A Santa Fe Passenger Train Leaving Chicago

Canadian National Demonstrates High-Power Oil Locomotive



Front of Locomotive No. 9000

ON August 26th a special passenger train running as a second section of the International Limited, was operated by the Canadian National from Montreal, Quebec, to Toronto, Ontario, hauled by Diesel-electric locomotive No. 9000. The purpose of the train was to give a public demonstration of the performance of the locomotive under actual operating conditions.

The train consisted of a combination baggage and smoking car, a day-coach, three solarium type club-observation cars and two business cars, weighing about 663¼ tons. The party consisted of representatives of the press from both the United States and Canada, officers of the Canadian National Railways, representatives from several railways in the United States, representatives of companies having a part in the design or construction of the locomotive—The Westinghouse Electric and Manufacturing Company, The Baldwin Locomotive Works, The Canadian Westinghouse Company and The Canadian Locomotive Company—and the mayors and presidents of the boards of trade of Montreal and of the communities at which the International Limited makes schedule stops.

The International Limited leaves Montreal at 10:00

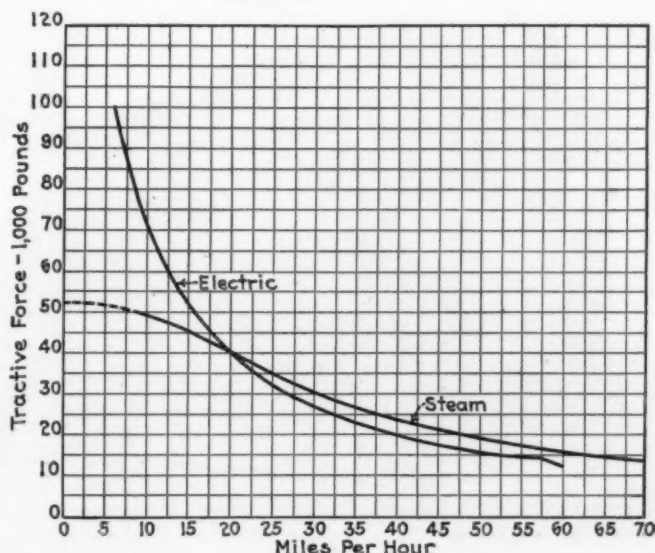
Easily handles an eight-car train on schedule of International Limited between Montreal and Toronto

A.M., eastern standard time, and arrives at Toronto at 5:40 P.M. after making 13 intermediate stops. The demonstration train was scheduled to leave Montreal 30 minutes behind the first section and to make the regular running time of the Limited and all its schedule stops.

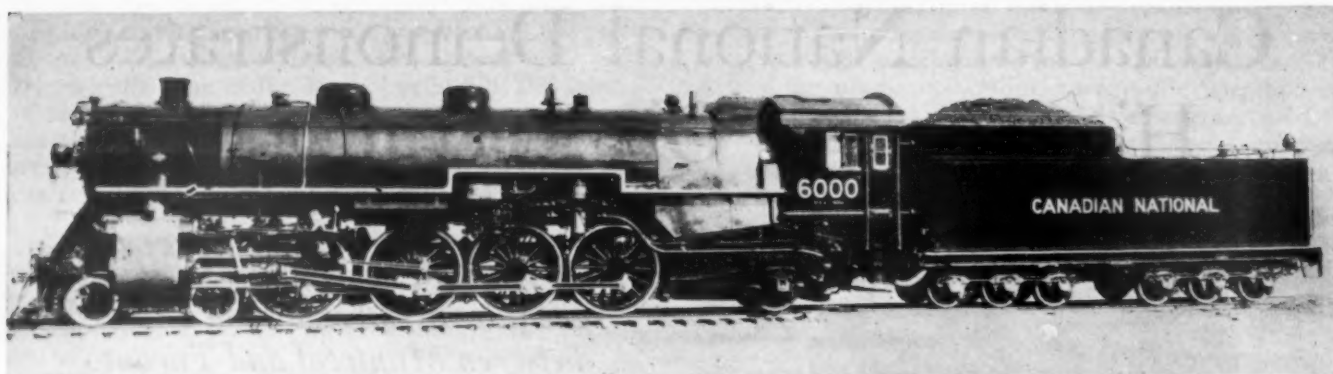
The Diesel-electric locomotive No. 9000* consists of two units, each of which is equipped with one 12-cylinder V-type solid-injection oil engine directly connected to a Westinghouse No. 478 generator, operating four Westinghouse No. 359 railway motors, each geared to one of the four driving axles. Each of the oil engines is rated at 1,330 hp. at 800 r.p.m. and is of the variable-speed type running from 300 r.p.m. idling speed to 800 r.p.m. full speed. The control is of the torque-governor type, and provides for varying the speed of the oil engine and the generator voltage and shunting the field of the series type traction motors for changing the speed of the locomotive. Remote control of the generator and motor switches and of the speed setting of the engine governor permits the multiple operation of the two units comprising the locomotive by a single operator.

The outstanding characteristic of the Diesel-electric type of traction is the ability to utilize practically the full rated horsepower of the prime mover at all speeds within the operating range of the locomotive. This results in the ability to develop draw-bar pulls at starting and slow speeds which are limited only by the adhesion of the driving wheels and by the temperature

* For a more complete description of the locomotive see the *Railway Age* for December 8, 1928, page 1125.



Comparative Tractive Force Curves of Canadian National 4-8-2 Type Steam Locomotive No. 6000 and Oil-Electric Locomotive No. 9000



The Steam Locomotive with Which the Tractive Characteristics of the No. 9000 Are Compared

rating of the electrical machinery. One of the illustrations shows a comparison of the tractive force curve of the No. 9000 with that of Canadian National Mountain type locomotive No. 6000. A comparison of selected dimensions and data pertaining to these two locomotives is shown in the table.

It will be seen that at speeds below 20 miles an hour, the tractive capacity of the Diesel-electric locomotive is materially in excess of that of the steam locomotive, while at speeds greater than 20 miles an hour the tractive force of the steam locomotive slightly exceeds that of the Diesel-electric locomotive, the two curves, however, remaining approximately parallel at speeds above 30 miles an hour.

The International Limited schedule calls for a run of 334 miles from Montreal to Toronto in seven hours and forty minutes with an average speed, including the 13 intermediate stops, of 43.6 miles an hour. The locomotive had no difficulty in making the trip in running time. At several points on the run, owing to delays at stations where stops were made, the train left from 2 to 13 minutes behind the schedule. With its 663-ton train, however, there was apparently no difficulty in making up time following any of these delays and the 334 mile run was completed in the schedule time of seven hours and forty minutes.

The advantage of the high tractive force at starting and at slow speeds was evident in the rapidity with

which the locomotive was able to accelerate the train. General observations indicate that locomotive No. 9000 will bring a train of this weight up to a speed of 60 miles an hour in about one-half the time required by steam locomotives similar to No. 6000. Based on voltmeter and ammeter reading, the maximum combined horsepower output of the two Diesel engines did not

Selected Data and Dimensions of Canadian National Oil-Electric and 4-8-2 Type Steam Locomotives

	Oil Electric Locomotive No. 9000	Steam Locomotive No. 6000
Total weight	668,000 lb.	594,860 lb.
Weight on drivers.....	461,904 lb.	231,370 lb.
Number of driving wheels....	16	8
Diameter of drivers.....	51 in.	73 in.
Engines	2 1330-hp. Beardmore: Oil Engine	.....
Generators	2 Westinghouse No. 478	.....
Auxiliary generators	2 Westinghouse YG-8	.....
Motors	8 Westinghouse No. 359	.....
	Railway	
Gear ratio	22:69	.....
Evaporative heating surface...	.....	4,049 sq. ft.
Superheating surface .....	.....	810 sq. ft.
Grate area .....	.....	66.7 sq. ft.
Cylinders .....	.....	26 in. by 30 in.
Steam pressure .....	.....	210 lb.
Maximum tractive force.....	100,000 lb.	49,600 lb.
Sustained tractive force.....	42,000 lb.	.....

exceed 2,100 hp. at speeds of 60 miles an hour or higher. At speeds up to 45 miles an hour, however, when handling the train up ascending grades, the engines developed between 2,500 and 2,600 hp. for several minutes at a time. In starting and accelerating the train the full horsepower rating of the engines was developed



Canadian National Locomotive No. 9000 Hauling a Passenger Train

for short periods. On one occasion the train attained a maximum speed of 73 miles an hour, which was sustained for a short time, with a power output of approximately 1800 hp. Speeds of 60 to 65 miles an hour were frequently reached and maintained for considerable periods.

During the demonstration trip the exhaust from the engine of the rear unit showed a brown haze both while idling and while developing full engine speed. The exhaust from the engine of the front unit, while visible, was considerably less noticeable.

Fuel Cost

The engines have a nominal fuel rate of .43 lb. of oil per brake hp.-hr. operating at their rated output. The fuel oil costs the railroad approximately five cents per U. S. gallon which, with coal averaging approximately \$5 a ton on the tender, gives a fuel cost approximately one-third of that of coal on a gross ton-mile or a passenger car-mile basis.

The first unit of the locomotive has been in various classes of service since its delivery late in 1928. The completed double unit will be operated in various services at various points on the Canadian National system for some time before being assigned permanently to any service in order that the railroad may determine its adaptability for service under a wide variety of conditions. It is also planned some time within the next few months to operate the locomotive on a continuous run from Montreal to the Pacific coast.

A Non-Corroding Metal for Building Construction

CONSIDERABLE attention has been attracted by the appearance of the pedestrian bridge which spans across Canal street in Chicago to connect the new Daily News building with the Chicago & North Western station and is used primarily by suburban passengers in going to and from the station. The roof, walls and window frames of this enclosed bridge are covered with a bright white metal resembling polished nickel or silver. It is known as Allegheny metal and is a chromium alloy of iron that is now available in the form of bars, sheets, tubes and rivets. Used originally in dairy tanks, paper mill vats and other industrial appliances where its non-corroding properties are of particular advantage, it has been applied more recently to such features of building exteriors where metal is



Allegheny Metal on the Pedestrian Subway

commonly employed and security against corrosion is especially desirable. Five tons of this metal were used to cover the pedestrian bridge mentioned above. Allegheny metal is sold by Joseph T. Ryerson & Son, Inc., Chicago.

Record Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended August 24 was the heaviest ever reported for the corresponding period of the year, amounting to 1,129,533 cars. This was an increase of 48,835 cars as compared with the corresponding week of last year and of 20,192 cars as compared with 1927. Increases as compared with both years were reported as to the loading of all classes of commodities except coal, livestock, merchandise and forest products. Coal, merchandise and forest products showed totals greater than for the corresponding week of last year, but fell below those of the year before, while livestock loading was less than in either of the two previous years. All districts except the Central Western reported increases compared with 1928, while all except the Pocahontas and Southern showed increases as compared with 1927. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Districts	Week Ended Saturday, August 24, 1929		
	1929	1928	1927
Eastern	254,228	249,471	250,535
Allegheny	231,114	219,937	221,932
Pocahontas	61,983	56,905	65,111
Southern	148,249	141,038	158,469
Northwestern	186,555	168,857	175,189
Central Western	158,232	161,579	155,370
Southwestern	89,172	82,911	82,735
Total Western Districts	433,959	413,347	413,294
Total All Roads	1,129,533	1,080,698	1,109,341
Commodities			
Grain and Grain Products	61,740	56,180	60,842
Live Stock	26,172	26,953	30,190
Coal	177,456	173,116	194,968
Coke	11,841	9,341	10,078
Forest Products	69,661	67,074	69,990
Ore	75,736	66,011	63,831
Mdse. L. C. L.	262,038	257,289	262,644
Miscellaneous	444,889	424,734	416,798
August 24	1,129,533	1,080,698	1,109,341
August 17	1,100,267	1,057,909	1,066,828
August 10	1,090,616	1,044,268	1,049,639
August 3	1,104,193	1,048,821	1,024,038
July 27	1,101,061	1,034,326	1,044,697
Cumulative totals, 34 weeks ..	34,174,767	32,637,510	33,684,647

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended August 24 totalled 69,906 cars, a decrease from the previous week of 36 cars and a decrease from the same week last year of 997 cars.

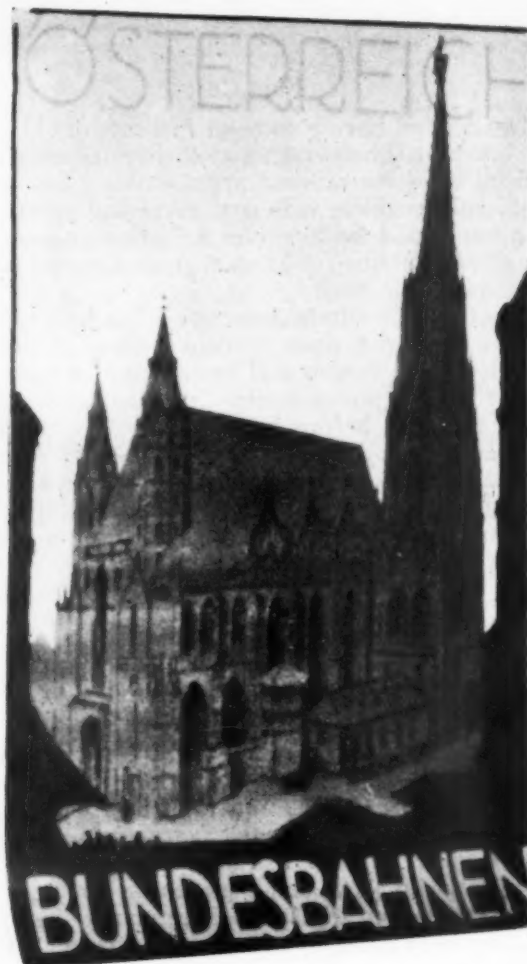
	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
August 24, 1929	69,906	37,875
August 17, 1929	69,942	37,275
August 10, 1929	65,552	37,724
August 25, 1928	70,903	39,170
Cumulative Totals for Canada		
August 24, 1929	2,260,180	1,405,049
August 25, 1928	2,206,305	1,324,465
August 27, 1927	2,069,595	1,281,673

THE NASHVILLE, CHATTANOOGA & ST. LOUIS is coloring the locomotive hauling the Dixie Flyer dark maroon. This color is used on the tender, cab, jacket, cylinder casings, headlight, stack and bell bracket. The front end of the smoke box is being finished with a light graphite paint. The wheels and other parts of the locomotive beneath the running board are finished in black.



Poster Exhibit

*Constructive achievement by young men
of the Boston & Albany at West
Springfield, Mass.*



THE Russell AREB (American Railway Employed Boys) Club of the Boston & Albany at West Springfield, Mass., is composed of about 50 apprentices, employed in the shops and enginehouse. It was formed several years ago as the result of the first International Younger Railroad Men's Conference, held in St. Louis in 1923. While it has been active in athletics and in carrying on a social program, it has done several outstanding pieces of constructive work in the interests of the shop and enginehouse employees, as a whole. It has, for instance, been instrumental in forming and carrying on a Christmas savings club, the maximum deposits of which, one year, reached over \$25,000. It has organized Americanization classes to

assist foreign born employees in qualifying for citizenship; these classes meet four noons of each week and this year have had an average attendance of over 60. Moving pictures are shown in the apprentice school every Friday noon, the room being filled to capacity.

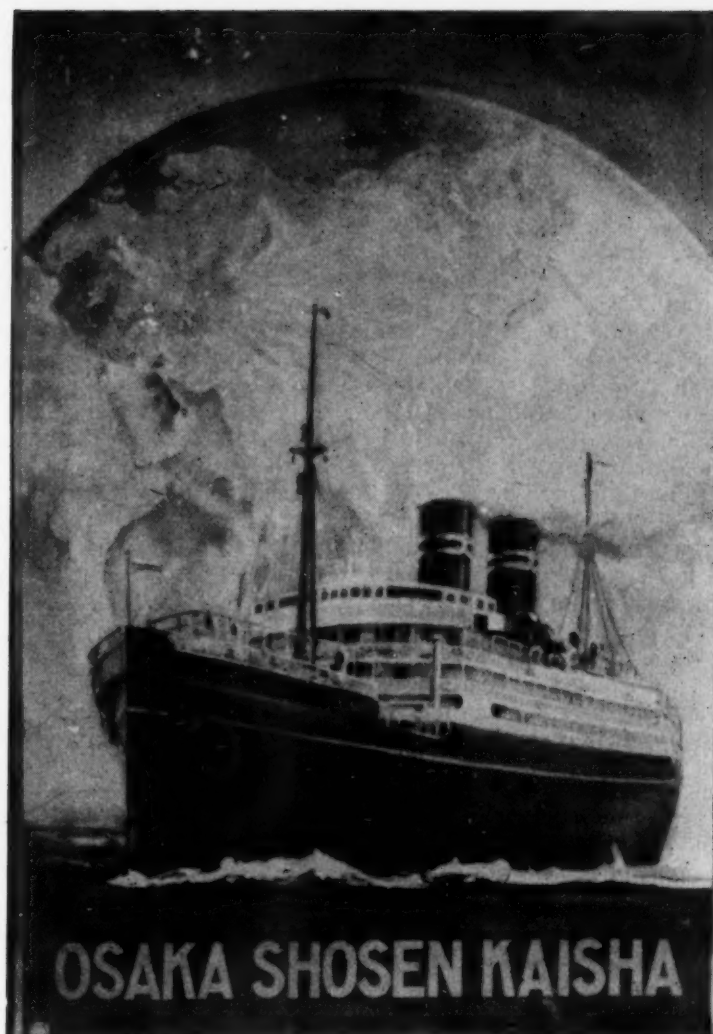
Not content with these accomplishments, the young men have been trying to create a greater interest in



Stimulates Travel



travel, not alone among their immediate associates, but in the community at large. The club conceived the idea that interest in travel by rail could be stimulated by a poster exhibit. The members divided up the task of writing letters to the executives of about 150 railroad and transportation companies, travel agencies, etc.,



throughout the world. As a result, they have gathered a large number of striking and artistic posters and a considerable amount of travel literature which they have exhibited before various organizations and meetings. Thus far the posters have been shown before the Chamber of Commerce, Rotary Club, Exchange Club and other civic groups.

The posters were loaned to the Springfield city library during the month of July. It had space to display only about 150 at a time so that to show all of the 300 posters the exhibit was changed from time to time. Travel literature, of which the young men have collected about 3000 pieces, was displayed along with the posters and the library also prepared special shelves of books on travel covering the different countries repre-



sented. The exhibit is said to have attracted greater attention than any other previously held by the library and the local newspapers gave it considerable space.

The Boston & Albany Supervisors' Club holds its monthly meetings in the Railroad Y. M. C. A. building at West Springfield. A feature of the program at the April meeting was a series of brief addresses by three of the AREB Club members and a display of these posters, which occupied not only all the wall space in the large meeting room, but overflowed into the lobby and restaurant.

In general, the posters of the foreign railroads are more elaborate and striking than those of the railroads in the United States, although the latter group does include many excellent examples of poster work. The exhibit as a whole has a large educational value and has been very greatly appreciated by the groups which have had the privilege of seeing it. Incidentally, not a few of the executives to whom letters were directed, asking for material, entered heartily into the spirit of the project and wrote personal letters to the young men, which are highly prized by the individuals who received them.

The Russell AREB Club is named after Samuel Russell, the master mechanic. The club has received excellent support and co-operation from the supervisors and foremen at the West Springfield shops and engine-house, and in addition to Mr. Russell, is particularly indebted to Harry C. Fletcher, the apprentice supervisor, and L. S. Erickson, who until recently was general secretary of the Railroad Y.M.C.A. at West Springfield.

its tunnel linings of concrete whenever the necessity for replacing the existing timber linings arises.

At the point where the tunnel in question is located the railway follows the Burnt river, a tributary of the Snake, passing through a mountain spur at one of the bends of the stream by means of a tunnel 530 ft. long. Originally, this tunnel had a clear height of 22 ft., but in accordance with the present standard practice of the Union Pacific, the concrete lining was designed to afford a vertical clearance of 24 ft. Additional width was also required for proper lateral clearance, so that it was necessary to enlarge the bore of the tunnel both horizontally and vertically.

The materials through which the tunnel had been driven were extremely variable; for about 50 ft. at the west end an igneous intrusion is found; for about the



West Portals of Original and Detour Tunnels

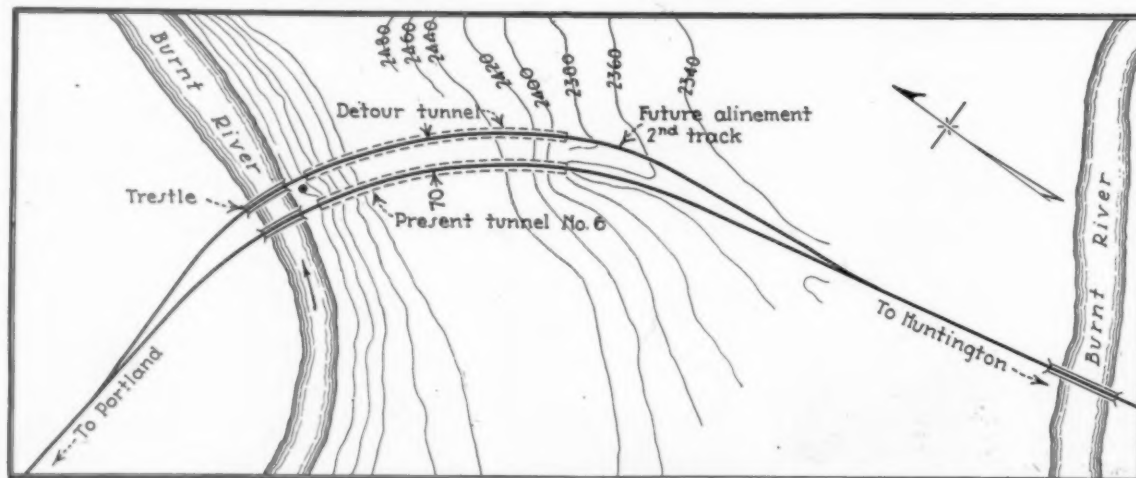
Detour Tunnel Constructed to Reduce Cost of Lining

THE relining of a tunnel under traffic is a difficult operation under the most favorable conditions. When the traffic is heavy or the materials which surround the tunnel are variable and badly broken, these difficulties are increased many fold. Such a situation was met and overcome by an unusual expedient in a tunnel lining project in Eastern Oregon in 1928, on the line of the Oregon-Washington Railroad & Navigation Co., the Union Pacific unit serving the Pacific Northwest. In line with a consistent policy of improvement, it is customary on the Union Pacific to construct

same distance at the east end the walls are in another igneous formation, overlaid in the arch with sand and cemented gravel, the remaining length of 430 ft. being in badly seamed and folded limestone. These materials were safe enough when properly supported but it was evident that they would be very treacherous during excavation.

This line is an important transportation unit, carrying from 16 to 20 trains a day, so that it was imperative that the work be pursued without interruption, and with safety to traffic, a difficult requirement if traffic were maintained through the tunnel in the usual manner during construction.

A possible detour along the course of the stream was



Alignment Map Showing Location of Present and Detour Tunnels

investigated and abandoned on account of the expense involved. Later, without much expectation that it would be economical simply as a construction measure, a detour tunnel was studied, but it was found that the total cost of constructing such a tunnel, diverting traffic through it while the original tunnel was being enlarged and relined, and later restoring traffic to the original alignment, would cost about \$8,000 less than to carry on the work under traffic by the usual methods. Other important features of this plan, aside from the saving in cost, were that safety and continuity in the operation of the railroad could be assured and, in addition, conditions permitted the location of the detour tunnel so that it would be available for second track.

Bids confirmed the estimates, and the work has been carried out in accordance with the program, as outlined, under the direction of the engineering department of the O.-W. R. R. & N. Co., the job having been completed January 20, 1929.

The wall between the completed tunnels is 50 feet thick and, considering the character of the rock and the effect of blasting, it would have been unwise to have reduced this thickness.

It might appear obvious that, after the second tunnel had been driven, it could have been lined and used permanently, the original tunnel being held for future second track. However, this plan was not considered feasible owing to the cost of constructing approaches and the necessity of moving or rebuilding a steel bridge adjacent to the west portal of the original tunnel.

In few railway construction problems are maintenance of traffic on the one hand, and interference by traffic on the other, such heavy elements of cost as in a tunnel job. Where there is a fair volume of traffic, spread throughout the day, a program of construction, with a detour tunnel, along the lines followed in this project, would seem to deserve consideration, even in favorable ground.

Is the Purchasing Agent Only a Rubber Stamp?

*An article in which a student of the subject answers in the
negative and proceeds to tell why*

By Francis D. Creedon

Chief Clerk, Purchasing Department, Buffalo, Rochester
& Pittsburgh, Rochester, N. Y.

THE expression, "The purchasing agent is but a rubber stamp," is a familiar one. Possibly one of the principal reasons for this expression is the fact that specifications and standardization play such an important part in the ordering of material and supplies, that the only responsibility of the purchasing agent appears to be that of signing his name on the dotted line. There is no question but that specifications and standardization insure material of quality and expedite purchasing, as well as being a guiding factor for future purchases, but the purchasing agent must have experience and qualifications that are often overlooked by those outside the department.

Well Organized Department

He must have, in addition to a technical training, a knowledge of the operation of the railroad and the uses for the material which he purchases. His organization should consist of a staff of experienced, loyal, and adequately compensated employees, also up-to-date office equipment and purchase records for guidance and reference. He must know his company's requirements, and locate dependable sources of supply where the proper quality and quantity of material can be procured at the best prices obtainable so that continuity of operation of the railroad may be assured at all times.

Delay to the operation of any part of the railroad on account of lack of supplies or the inability of the source of supply to furnish material in time for use, increases material and operating costs. The costs of transporting, handling, storage, insurance, depreciation,

deterioration and obsolescence are factors which every purchasing agent must consider and not leave entirely to the storekeeper, whose responsibility is primarily to requisition, receive, check, store and disburse the material. Acquaintance with ever-changing prices and market conditions is also essential to protect the company in the event of an advance or decline in any particular market.

The purchasing agent should have such knowledge of the law as applied to purchasing that his company will not become involved in contracts or purchases which will prove costly or embarrassing. He must be shrewd, yet ethical in his dealings. He is in a position to build up or adversely affect the sales or reputation of his company through the methods employed in purchasing.

The cost of sales depends to a great extent on the progress which salesmen are able to make when calling on purchasing officers. If they are unnecessarily delayed in their calls, the number of calls it is possible to make is reduced, and the cost of selling is thereby increased. A well-organized purchasing personnel will assist the purchasing agent as well as speed up the movement of salesmen.

There are many ways in which a purchasing agent can save his company money. Buying materials in such quantities that the cost of both the material and transportation are lowered is one way. Procuring material in time to allow direct shipping to the point of consumption, thereby eliminating storage and extra handling, is another way. He can also save by discounting invoices for prepayment within a specified time, and by checking

invoices and material closely upon their receipt, which should include weighing. In these and other methods, purchasing departments can offset their payroll expense.

The occasion frequently arises where the mechanical or engineering department will order and specify a certain grade of steel, or a grade of lumber which it is not possible to obtain locally in time to use without interfering with operations. In such cases, the purchasing agent may know a source of a suitable substitute, which, in many cases, can be obtained at a saving under the cost of the specified material. Departments requesting material do not always think in terms of cost, being anxious to get the material which they believe should be furnished, and it is here that the purchasing agent, while not an advocate of substitutes, can prove his knowledge of the material markets, often by suggesting the use of material which can be obtained at a lower cost without detriment to the class of work for which the original material was specified. Where conditions calling for substitutions do not arise, the purchasing agent must not permit sources of supply to deviate from specifications and standards by furnishing material of inferior quality, as this will result in increased costs.

Scrap Sales Important

One of the most important subjects for the purchasing agent today is the study of salvage, reclamation and the disposal of scrap material. There is no greater way to save money than by reclaiming material which can be used in place of buying new material as well as converting reclaimed material into other forms for various uses. Proper inspection at the time of reclaiming is, of course, essential. The war taught many large concerns, and small ones too, the value of reclaimed material, and the subject is deserving of careful study and supervision. The word "scrap" is usually associated with something of little value, but to the purchasing

officer it represents something of great potential value. Proper classification of scrap material and its disposal at the right market price is money earned. Classified scrap always brings a higher price than unsorted scrap. There are no specifications to guide the purchaser in this work. The savings are the result of his experience.

The purchasing agent must work in close harmony with all departments, and become acquainted with their operations and requirements if the utmost efficiency is sought in furnishing the right material at the right time without increasing costs. He is without doubt one of the most valuable officers of the organization, since his position places him in contact with all departments. He has the opportunity to consult with the storekeepers and the heads of departments regarding their needs and advise them in advance as to the opportune time to request the material and supplies they require.

The purchasing agent is in a position to assist the traffic department in procuring traffic for his railroad, where he finds such relations to the company's advantage, by distributing orders among manufacturers in highly competitive territory where quality, the delivery and costs are equal. Reciprocity is still somewhat of a problem to many railroad purchasing agents, but with the standardizing of nearly all material and supplies and the fact that present day mergers of manufacturers are gradually establishing one source of supply, the difficulty is gradually passing.

Regulated buying regulates production to a certain extent, also with our ever-advancing and highly organized transportation facilities and methods today, and the efficiency of manufacturers in production, carrying heavy stocks of material is practically unnecessary, and capital previously tied up in stocks is released for other lines of investment and development. This is a buyer's age, and the purchasing agent cannot be a "rubber stamp."

* * * * *



Southern Pacific Train in the Sierra Nevada Mountains, Hauled by One of the New 4-8-8-2 Type Single Expansion Articulated Locomotives Built by Baldwin



A Portion of the Locust Point Yard of the Baltimore & Ohio

B. & O. Controls Yard Performance

A goal is set for each terminal and daily records are supplied to supervisors

DURING the year 1928, the various terminals on the Baltimore & Ohio showed distinct improvement in efficiency as measured by cars dispatched per freight switching engine hour. At Connellsville, Pa. yard, for example, where 60,000 cars per month are handled, 19 cars were dispatched per engine hour in 1928, as compared with 16.7 cars in 1927, an increase of 14 per cent. Selecting further at random from other yards on the system, where widely varying conditions prevail, at Johnstown, Pa. yard, which handles 5,600 cars per month, 7.4 cars were dispatched per engine hour in 1928, as compared with 6.6 in 1927, an increase of 12 per cent. At Demmler, Pa. yard, which handled 10,400 cars per month, 6.1 cars were dispatched per engine hour in 1928, as compared with 5.7 in 1927, an increase of 7 per cent. Pittsburgh, Pa. terminal transfer trains, handling 21,000 cars per month, dispatched 14 cars per yard engine hour in 1928, as compared with 12.2 cars in 1927, an increase of 15 per cent.

As a whole, the yard performance records showed a marked improvement in 1928 over 1927, and an even greater improvement as compared with previous years, as the result of inaugurating, in 1927, a goal of expected performance in cars dispatched per freight switching engine hour for each yard on the system. At the same time, yard expenses, as measured by the cost per car dispatched, showed a satisfactory decrease, attributable largely to the daily and periodical yard cost statistics supplied to yardmasters and terminal trainmasters.

The B. & O. was one of the first roads to realize the importance of co-ordinating yard operation throughout the system, rather than on the basis of local expediency, besides being the pioneer in the use of the "maintracker"

plan of the train operation. The results of such plans, both as applied to the B. & O. and to other railways, have been described in detail in past issues of the *Railway Age*.

On the B. & O., each individual yard is now operated on a "maintracker" basis. As a result of years of intensive study, working books have been prepared covering each important yard, which describe in detail the assigned work to be performed by each yard engine to secure the maximum efficient utilization of terminal motive and man power. Based on the information gained in this study, the chief of yard and terminal operations, late in 1926, set up a goal of expected performance for each yard on the system for 1927.

The unit of physical performance: "Cars dispatched per freight switching engine hour" was selected, first, because it affords an adequate picture of yard performance, and, second, because it can be verified quite easily under the system of reports used on the B. & O., thus avoiding the possibility of irregularities and inflation of the physical performance.

The complete control of yard operations made possible by the individual working books, allocating the work, by affording regular movement within each yard, enabled the chief of yards and terminals to set up a goal of expected performance that closely approximated actual performance. At Connellsville, for example, the expected performance figure was set at 16.7 cars per switch engine hour, for 1927, and that is the exact average that was actually made. In 1928, the expected figure was set at 17.2 cars, but the excellent results obtainable from daily statistics were underestimated, and the yard actually averaged 19 cars. At Demmler, an expected figure of 5.9 was set up for 1928, and the actual performance was 6.1; at Glen-

wood, 4.6 was the goal and 5.1 the actual performance. At Thirty-Sixth Street, Pittsburgh, an expected figure of 1.4 cars was set up, and the actual average was 1.4 cars. For the Pittsburgh terminal transfer trains, an expected figure of 12.6 cars was set up, and the actual performance was 14 cars. At Willard, the goal was 10.4 cars dispatched the actual 10.5 cars.

The Daily Statistics

To aid yardmasters and other terminal supervisors in bettering their performances, daily operating and cost reports are supplied to them. One of these reports covers terminal performance, the other hump yard performance. These reports are on a daily and a cumulative basis and are unusually complete as to the information supplied. The terminal performance report shows, at the top, the goals set for the particular yard covered. These include:

- Cars dispatched per freight and helper engine hour.
- Cars dispatched per transfer engine hour.
- Light-weighing and re-stencilling monthly allotment.
- Inbound terminal time:
 - From the East.
 - From the West.
- Outbound terminal time:
 - Eastward.
 - Westward.

With these standards as a basis, the expected performance is kept before the supervisors daily, and the actual performance records may be checked against the standards at once, while the daily detailed cost analysis also provides an excellent check upon efficiency.

Separate daily and cumulative figures are given, showing both straight time and overtime for freight, helper, passenger and transfer engine hours. The total numbers of cars arriving and dispatched are also given, with daily and cumulative figures for cars dispatched on transfer trains, cars dispatched per freight and helper engine hour and cars dispatched per transfer engine hour. A daily check on the man-power is provided by records of the total number of yard and transfer crews worked.

The inbound and outbound terminal times are also carefully analyzed. In each case, daily and cumulative figures are given for each direction separately, showing the number of trains, the total time and the average time.

The report is rounded out by an analysis of the incidental yard work, which shows the number of cars light-weighed and re-stencilled, daily and cumulative, each separated as between system and foreign cars. Comparative figures are given for each item for the previous month and the previous year.

The terminal performance report is supplemented, in terminals where gravity switching is used, by a daily and cumulative hump performance report. The standard factor used is the number of cuts per rider hour, and this standard figure, separately for eastbound and westbound, is given at the head of the report.

A detailed analysis is given separately for the eastbound and westbound humps and for each trick on each hump, on a daily and cumulative basis. This information includes:

- Number of riders
- Number of cars
- Number of cuts
- Cuts per rider hour.

The comparative figures on all of these factors are given for the previous month and the previous year, and these, taken in conjunction with the standards of expected performance, enable the supervisors to know each day exactly what is being accomplished. Any ir-

regularities that may creep in stand out prominently, even with only a cursory glance at the report, and no supervisor, armed with this report, has any excuse for permitting them to continue.

Monthly Statistics

A resume of terminal performance and expenses is given to each yard each month. The standard of expected performance is given at the head of this report in a fashion similar to those shown on the daily reports. In addition, the following complete information is shown for the month:

- Wages of:
 - Supervisors
 - Switch and signal tenders
 - Crews
- Expenditures for:
 - Fuel
 - Water, lubrication and supplies
 - Enginehouse
 - Total yard expenses.

Operating performances are also given in detail as follows:

- Cars dispatched:
 - From yard
 - Delivered to connections
 - Total.
- Cars dispatched from yard:
 - Cost per car
 - Cars per freight yard engine hour.
- Yard engine hours:
 - Passenger
 - Freight
 - Pounds of coal used per yard engine hour.

These reports are blue-printed and show each month separately. Space is provided to cover a four-year period, so that any necessary comparisons may be made.

The General Plan

The system of reports is not elaborate or complicated. By means of one daily report, the entire picture of the terminal operation is laid before the supervisors, except where a "hump" is operated, when a supplementary humping performance report is given. With the monthly summary of expense and performance, a close and accurate check is provided. The value of accuracy, completeness and timeliness has been amply demonstrated by the steadily improving performance records. The chief advantage of the plan has been to remove all guess-work from yard operation and to put it instead on an accurate basis, where any time wastes and leakages, or other operating inefficiencies or extravagances, are immediately brought to light.

* * *



Eastbound Western Pacific Fruit Train in Feather River Canyon, Near Mayaro, Cal.

Be Sure to See the Caution Signal

Descriptions of artificial landmarks extensively used in Europe

THE most difficult point in the perfecting of the engineman's art or science of safe running at high speed is to insure that the caution signal shall not be passed without being seen. Fog, or snow, or a moment's mental lapse (or two of these conditions combined) may be the cause of the most disastrous collision. Such collisions have occurred on roads classed as the best. On the thousands of miles of road where automatic train control or the audible cab signal is unavailable, because too costly, this problem still exists; but it is not to be classed as beyond solution. If we do not find a way to utilize the engineman's ears it is still possible to give further aid to his eyes. One way to do this, which is widely employed in Europe but not in this country, is described in this article.

The principle is simply that of providing unmistakable markers or landmarks, fixed close to the track.



Fig. 1—Typical Arrangement of Landmarks on Belgian Railroads

Trains run on the Left hand Track. The Location of the Signal is Indicated by "A."

These landmarks are large boards, set at suitable distances from the signal. They are usually painted white with black, red or green stripes and, in the language of a Belgian railroad officer, they "compel" the attention of the passing engineman.

An engineman who misses a signal may be assumed to have turned his eyes away for a very short time; the remedy is to give him additional time. The placing of a series of boards where he can see them for 10 or 15 seconds before reaching a roadside signal



Fig. 2—Typical Arrangement of Landmarks on Netherlands State Railroads

which is set against him, may be called a perfect visual warning. The ideal arrangement would be a white fence, striped with black and set about 4 ft. from the track. With such a fence, 3 ft. high at its near end,



Fig. 3—"Baaks"—Netherlands State Railroads

say 800 to 1000 ft. in the rear of the signal, and of a height gradually increasing to 10 ft. at the further end, say 300 ft. in the rear of the signal, no engineman with intelligence sufficient to operate a wheelbarrow could expect to be excused for neglect of the signal, even under extraordinary conditions. In practice, a much less elaborate "fence" is found to be satisfactory. A single striped post is of value.

This arrangement of landmarks was first prominently brought to notice in this country by the late Louis Weissenbruch, formerly secretary of the International Railway Congress, in July, 1920. (*Railway Age*, July 2, 1920, page 29.) The device, said to have been originated by Mr. Weissenbruch in 1902, was then in use on the Belgian State Railroad between Antwerp and Brussels. Today, the use of these boards has spread to all of the government lines throughout Belgium; and similar warnings are extensively used in Holland, France and Italy.

Belgium

On the Belgian lines, the landmark boards are 16 ft. long and 16 in. wide, and are set horizontally, supported on two or three posts. The board stands at an angle of 45 deg. with the line of the track. See Fig. 1. The posts are from 4 ft. to 8 ft. high.



A



B

Fig. 4—Landmarks on French Railroads



Fig. 5—Eastern Railroad of France

The usual practice is to set up five of these barriers, so-called, at the approach to a signal, spaced 50 meters (164 ft.) apart; the first one about 820 ft. short of the signal. The barrier nearest the signal has one diagonal black stripe, the next one has two stripes, the next three, the next four and the one farthest away, five stripes. These boards are repainted usually once or twice a year, the intervals varying according to circumstances. At first, luminous indicators (lamps) were used, but these have been abandoned, the boards having been found to give full satisfaction both day and night.

Netherlands

Landmarks or markers of this kind were used on the Netherlands State Railways evidently as early as in Belgium. The Dutch call the marker a "baak." The first baak installed consisted of a large board, set vertically, painted with white and black squares. After various experiments, this design was abandoned and the boards, being arranged in nearly a horizontal position, were set on posts arranged so as to slope upwards. The arrangement of these boards is shown in Figs. 2 and 3. Those shown in the perspective view are 27 ft. long and 17 in. wide. The height is 6 ft. at the near end and 9 ft. at the farther end. The space between the two is 60 ft., so that the distance from the beginning of the first to the end of the second is 114 ft. However dense the fog, the boards, we are told, "are thrust upon the engineman."

The Netherlands State Railways have 1,107 miles of railroad operated under the block system; 200 miles single track, 900 miles double track and seven miles four-track.

France

The use of these markers in France led to the issuance by the government of a specification, designed to establish uniform practice, though we are not informed what conditions are imposed; i.e., what degree of unimportance, as regards a given road or section of road, will excuse a company from installing the posts. The government circular calls for a style quite different from the Belgian and Dutch patterns.

The typical marker in France is a vertical board, bearing in relief three parallel oblique bands, set laterally to the track. Fig 4A shows the typical design. Some boards have red stripes and some green, both

with a white background, and differing according to whether it is a stop or a caution signal that is being approached. Where there are groups of signals, one board answers for all in a group; and in the case of a group, the oblique bands slant alternately from right to left and from left to right, (4B).

Audible cab signals are in extensive use in France; but on lines where this improvement has not been introduced, the landmarks are very generally used; but, as stated, they are different in design from those of Belgium and Holland. The illustration, Fig. 5, shows an installation on the Eastern Railway. Trains run on the left hand track. In the picture there are two of the landmarks, A and B. The signal to which these markers indicate the approach is at C. In this signal the indications are given by disks showing on their surfaces red or green squares. The first landmark, A, is provided with a lamp to make it visible at night.

The Eastern has 1100 installations of these posts, of which 650 are provided with lighting at the first post. Incidentally it may be mentioned that the Eastern now has cab signals on 3150 locomotives and that there are 4300 crocodiles in the track to actuate these cab signals.

On the Northern, the landmarks are of similar design. Some of the boards have red stripes and some green.

On the Paris, Lyons & Mediterranean warnings are painted on three consecutive telegraph poles, the paint extending from a point 20 in. above the ground up to the first insulator. For a group of signals, the poles are painted with annular white bands, about 10 in. wide, with unpainted bands of the same width between.

A MEETING of the Missouri Public Service Commission and representatives of Missouri railroads was held at Jefferson City on August 16 to discuss a survey of all railroad grade crossings in the state, incident to a program for grade-crossing elimination. As a result of the meeting, a railroad engineering committee will be appointed to work with the commission.

THE "CHELTENHAM FLYER" of the Great Western Railway of England which is scheduled to run from Swindon to London (Paddington) 77¼ miles, in 70 minutes, from start to stop, had on August 9, been running a month and had made this time without exception. The average rate of speed is 66.2 miles an hour. On 12 occasions during the month the journey was completed in from 66 to 69 minutes.

* * *



On the New York Central at Indiana Harbor, Ind.

Southwestern Roads Vie for New Lines in Texas Panhandle

Applications now pending contemplate the construction of 900 miles of road in West Texas

A DEVELOPMENT activity which rivals the efforts of the Florida railroads to keep pace with the post-war boom in that state a number of years ago, has resulted in the recent filing with the Interstate Commerce Commission of applications for the construction of more than 900 miles of new lines in the Texas Panhandle and the surrounding territory. In addition, during the last four and one-half years approximately 725 miles of new lines have been constructed in the section between San Angelo, Tex., and the Kansas-Oklahoma state line and between the New Mexico-Texas line and a north and south line drawn through Fort Worth. In addition 154 miles more are under construction on the Kansas City Mexico & Orient lines of the Santa Fe south of San Angelo which are not strictly involved in the present development.

The F. W. & D. C. and Rock Island-Frisco Applications

Two of the most competitive of the applications now pending before the Commission are those growing out of the proposal of the Fort Worth & Denver City, a Colorado & Southern subsidiary, and the joint proposal of the Rock Island and the Frisco to provide the southeast corner of the Panhandle with a direct line to Fort Worth and Dallas. Both proposed lines would traverse one of the few sections of the Panhandle which is not provided with rail service. The F. W. & D. C. seeks to traverse this area with a 110-mile line from Childress to Pampa, connecting at the former point with its main line to Fort Worth and with the Trinity & Brazos Valley to Houston.

The Rock Island-Frisco applications involve the construction by the Rock Island of a new line from the Panhandle at Shamrock on the Amarillo-Memphis line of that road to a connection with a proposed extension of the Frisco from Vernon to Seymour. These branches would have a combined mileage of 150. The Frisco application contemplates the acquisition of the Gulf, Texas & Western between Seymour and Jacksboro and the negotiation of trackage rights over the Rock Island from Jacksboro to Fort Worth as the final links in the new route. To make further use of the trackage rights into Fort Worth the Frisco asks authority to extend the G., T. & W. from Seymour, northwest 71 miles to Paducah. In the event that this certificate is granted the Rock Island will ask to be allowed to build an extension from Groom, a point near Amarillo, south 97 miles to Paducah and to operate over the proposed Frisco extension, the G., T. & W. and its own line into Fort Worth. Pertinent to these applications is also that of the Rock Island to construct a connection between its Tucumcari (N. M.)-Topeka (Kan.) and Amarillo-Liberal lines which would cross the north east corner of the Panhandle from Dalhart, Tex., to Pringle, 60 miles. With these lines the Rock Island and Frisco would have a route for transporting Panhandle products to the Gulf of Mexico and intermediate transshipment points rivaling the present Colo-

rado & Southern (F. W. & D. C.) and Santa Fe routes.

The F. W. & D. C. and Rock Island plans on the eastern edge of the Panhandle involve some duplication of trackage and at the Interstate Commerce Commission hearing before Charles D. Mahaffie, director of finance, at Fort Worth from July 29 to August 3, F. E. Williamson, president of the Colorado & Southern, proposed that the competing roads construct a joint line between Wellington and Shamrock, about 25 miles. Mr. Williamson also stated that the prospective traffic would justify the construction of the competing lines and that the Colorado & Southern subsidiary expected to receive from its line from Childress to Pampa an annual net railway operating income of \$300,000. The proposed line, L. M. Hogsett, general freight agent of the F. W. & D. C., testified, would yield 12,463 cars of freight per year and serve rapidly developing gas and oil areas in Gray county, Tex., extending for 80 miles south of Pampa in a belt 20 miles wide.

Representatives of various communities along the proposed line and shippers testified for the Fort Worth & Denver City. Among these was Joe Danciger of Amarillo, Tex., who described the development of oil fields in the Panhandle and in Gray county. He declared that the daily production of the Pampa oil field is 60,000 bbls., with the probability of an increase to between 100,000 and 200,000 bbls. daily and with a prospective life of between 25 and 30 years. Pampa oil is of unusually high specific gravity, he said.

The acquisition of the Gulf, Texas & Western by the Frisco might be considered to comply with Commissions' general policy of finding places for independent short lines in large systems. At the opening of the hearing on July 29, Clarence E. Gilmore, C. V. Terrell and L. A. Smith, members of the Railroad Commission of Texas, testified that unless the Gulf, Texas & Western is sold or leased to a trunk line it is faced with the possibility of suspending operation. P. E. Bock, general superintendent and traffic manager of the short line, said that at the present time the road is handling about 50 per cent of its capacity as a freight carrier and about 15 per cent of its passenger capacity.

Testimony presented by T. H. Wilhelm, general freight agent of the Rock Island, showed that the new route would shorten the distance between Dallas-Fort Worth markets and the Panhandle by about 80 miles. L. C. Fritch, vice-president of the Rock Island, stated that his railroad plans to expend about \$4,217,900 on the construction of the Quanah-Shamrock line and the Burlington had previously announced its estimated expenditure for the 110-mile line to be between \$3,500,000 and \$4,000,000.

The Proposed Beaver, Meade & Englewood Acquisition

Just north of the Texas Panhandle in Western Oklahoma the Missouri-Kansas-Texas and the Rock Island have each asked permission to acquire the Beaver, Meade

& Englewood, a short line extending from Beaver, Okla., west 67 miles to Hough. A connection is now made with the Katy at Forgan, Okla., a point near the B., M. & E. eastern terminus, and with the Rock Island Tucumcari-Liberal line at Hooker, Okla. The Rock Island Amarillo-Liberal line which was placed in service for its entire length on August 15 crosses the B., M. & E. near Baker. Acquisition of this short line by either the Katy or Rock Island would furnish those roads with access to a wheat producing territory. It would serve merely as a branch line and connection between two main lines for the Rock Island and as a westward extension of the Katy's Altus-Forgan branch which connects with its main line at Whitesboro, Tex., and would provide a direct one-railroad route from Western Oklahoma to Fort Worth and Dallas and the Gulf of Mexico.

A rapidly developing oil field in Lea county, N. M., has prompted the Atchison, Topeka & Santa Fe to apply to the Commission for authority to construct an extension of its Amarillo-Seagraves branch west 46 miles to Lovington, N. M., and south 43 miles from the latter point. The Texas & Pacific, with the same oil field as an incentive, has asked for permission to construct a line into Lea county from the south to Lovington, about 71 miles. The Texas & Pacific has received authority and has already constructed a branch from Monahans, Tex., on its El Paso-Fort Worth line to the Texas-New Mexico state line, about 39 miles. The section of this branch in Texas passes through the Winkler County oil field. Each line would furnish transportation facilities to an agricultural territory in Gaines County, Tex., and Lea County, N. M.

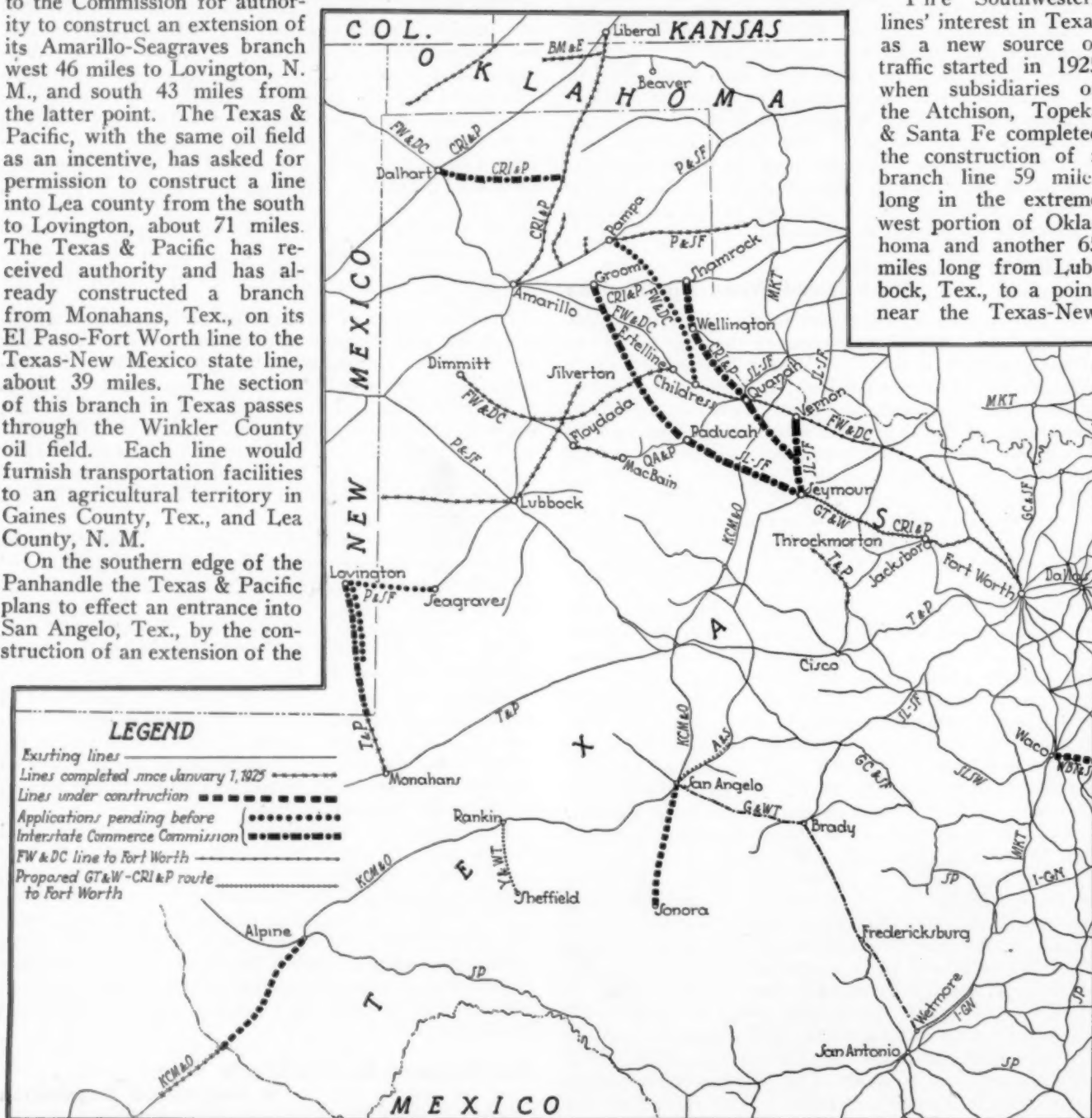
On the southern edge of the Panhandle the Texas & Pacific plans to effect an entrance into San Angelo, Tex., by the construction of an extension of the

Abilene & Southern from Ballinger to San Angelo, 39 miles. The Abilene & Southern connects with the Texas & Pacific at Abilene and the new extension would practically parallel the Santa Fe throughout its entire length.

South of San Angelo a new company, known as the Gulf & West Texas, has been formed to construct a railroad from that city through Fredericksburg to Wetmore, about 170 miles. Wetmore is a point on the International-Great Northern, 11 miles east of San Antonio. This proposed line would traverse a section hitherto unprovided with rail transportation facilities for the greater part of its length.

Another application pending, which is somewhat south of the Panhandle development, is that of the Yates & West Texas to construct a railroad from Rankin on the Kansas City, Mexico & Orient, 103 miles west of San Angelo, south to Sheffield, along the Pecos river, 40 miles.

The Southwestern lines' interest in Texas as a new source of traffic started in 1925 when subsidiaries of the Atchison, Topeka & Santa Fe completed the construction of a branch line 59 miles long in the extreme west portion of Oklahoma and another 65 miles long from Lubbock, Tex., to a point near the Texas-New



Map Showing Existing and Proposed Lines in the Texas Panhandle and South Plains Territory

Mexico state line. In the following year the Chicago, Rock Island & Gulf completed the first section of its Amarillo-Liberal line, the Santa Fe placed in service a 31-mile branch to an oil field north of Panhandle, Tex., and the Beaver, Meade & Englewood began its extension into the western neck of Oklahoma.

This activity was renewed in 1927 when the Rock Island completed 20 more miles of its Amarillo-Liberal line, the Santa Fe constructed a 10-mile branch north of White Deer, Tex., in the heart of the Panhandle and the B., M. & E. extended its line 12 miles farther west.

Recently Completed and Proposed Mileage in Texas Panhandle

	Under Construction Miles	Completed Since January 1, 1925 Miles	Applications Pending Miles
A. & S.	39
A. T. & S. F.	246	89
C. R. I. & P.	146	265
B. M. & E.	32	...
F. W. & D. C.	207	110
G. & W. T.	170
K. C. M. & O.	154	...	...
Q. A. & P.	28	...
R. G. M. & N.	6	...
St. L.-S. F.	113
T. & P.	68	71
Y. & W. T.	40
Totals	154	723	897

This year also witnessed the start of the 207-mile extensions of the Fort Worth & Denver City subsidiary, on the Staked Plain at the southern edge of the Panhandle, a project which is larger than any other single railway extension built in the United States in recent years.

In 1928 and 1929, in addition to completion of the Fort Worth & Denver City extensions, the Rock Island has placed in service its line to Liberal, the Santa Fe has completed its line from Pampa, Tex., to Cheyenne, Okla., the St. Louis-San Francisco has completed a 28-mile extension of the Quanah, Acme & Pacific and the Beaver, Meade & Englewood added 20 miles more to its line in Western Oklahoma. On the fringe of the Panhandle development, the Texas & Pacific constructed a 38-mile extension of the Cisco & Northeastern west of Fort Worth and 28 miles of branch lines.

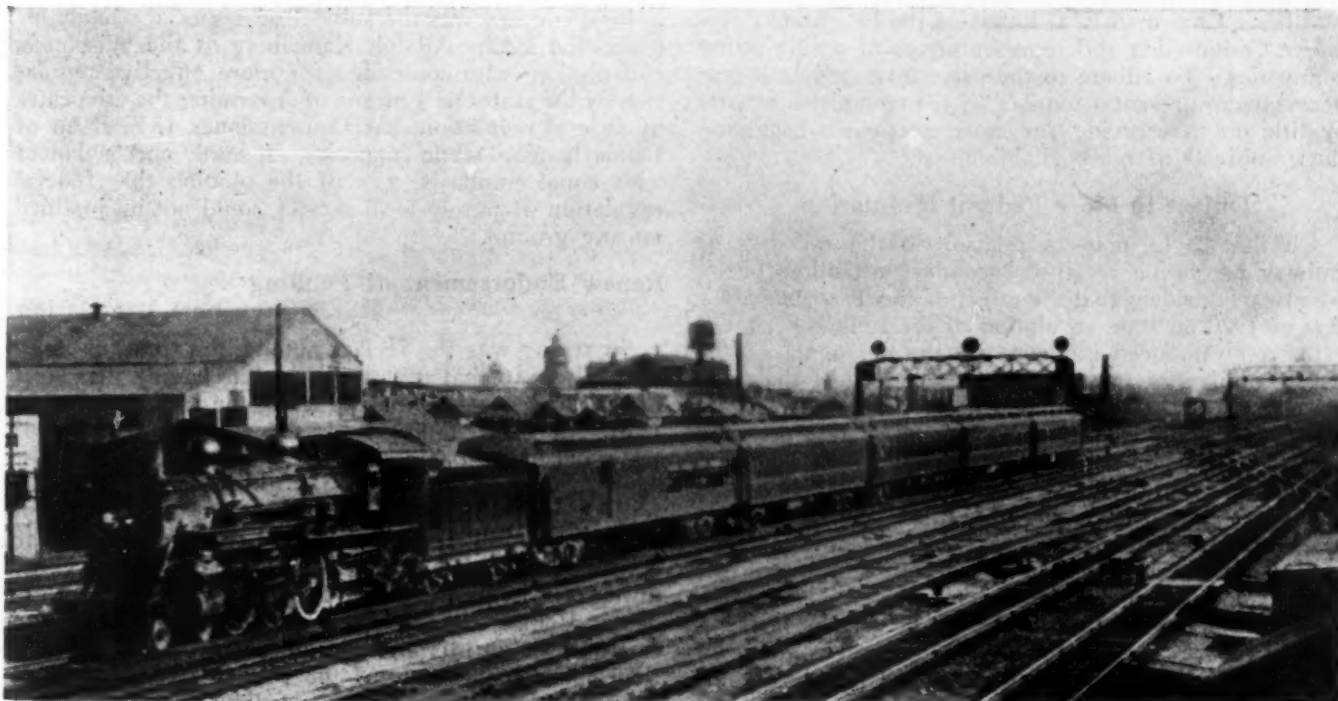
It is interesting to note some of the factors which have

been responsible for this railway development of the Panhandle and the South Plains territory. Until about 20 years ago the only industry in those sections was cattle raising. Then a diversification of agricultural production made the section extremely attractive from a traffic standpoint. Irrigation has aided the production of crops that were foreign to the Panhandle. Within the past few years farmers have come to the realization that certain sections of the Panhandle and the South Plains are peculiarly suited to the raising of wheat. The discovery of sizable oil and gas fields was probably immediately responsible for the desire to be first into the Panhandle, while the agricultural traffic increases and develops following the construction of new lines.

Economically the Panhandle and the South Plains are of much importance. As an indication of the many factors bearing on the construction of new lines in those sections and the increasing development, the following, an excerpt from the Commission's report authorizing the Fort Worth & Denver City construction in the South Plains in 1926, is given:

"The facts of record warrant the conclusion that a line such as is proposed . . . opening a more direct and practicable route from the Plains to Fort Worth, Dallas and other points to the east and southeast would greatly promote the feeding of cattle, most of which, as fat cattle, would be shipped to Fort Worth, would tend to increase the feeding of hogs for the Fort Worth market where, other things being equal, it should be more economical to pack meat for Texas consumption than at points farther north; would be of some advantage to the mills of northern and central Texas for the movement of grain, resulting in increased competition for grain grown in the Plain and possibly some benefit to the producer and consumer; would be of some advantage for quicker movement of green grain to Fort Worth; would make the storage facilities at Fort Worth more accessible during times of congestion at Galveston; would possibly stimulate the development of irrigation by making more accessible nearby markets for vegetables; would give better passenger, mail, and express service than is possible under existing conditions; and would give the people of the Plain more convenient access to nearby markets for supplies. It would result in little if any, benefit to the cotton industry of the Plain except in making more accessible sources of supplies for those engaged in the industry. The benefits to result to the grain industry would probably be more than offset by the loss of economy due to graindealers forcing grain through Fort Worth on circuitous routes."

* * *



A Chicago & Eastern Illinois Passenger Train at Chicago



Members and Guests of the National Association of Railroad and Utilities Commissioners at Many Glaciers Hotel, Glacier Park

State Commissioners Hold Meeting at Glacier Park

*Three members of I. C. C. also attend convention of national
association of regulatory authorities*

WITH a registration of 260 persons, including members of 43 state commissions, three members of the Interstate Commerce Commission and officers of a number of public service companies, the convention of the National Association of Railroad and Utilities Commissioners, held at Many Glaciers Hotel, Glacier National Park, from August 27 to 30 inclusive, had by far the largest attendance in its history. The program was a full one, covering virtually all phases of public utility and railway regulation in the form of 28 committee reports, in addition to which there were at least a dozen addresses by persons outside the organization, including Governor Clyde M. Reed, of Kansas, Ralph Budd, president of the Great Northern, Chairman E. I. Lewis of the Interstate Commerce Commission and representatives of public utility companies. To adhere to the program schedule it was necessary to present a number of the committee reports by title only, reserving for more extensive discussion those subjects of more vital interest.

Object to More Federal Regulation

On the whole, matters relating to the railways or railway regulation received secondary attention, but it was clearly evident that the effect of the Transportation Act of 1920 on state regulation of the railways has exerted a pronounced influence on the personnel of the association in its attitude toward any project that suggests further curtailment of the prerogatives of the states. For this reason, greatest interest was centered at this convention on the Couzens' Senate Bill No. 6 for the creation of a federal commission which would assume the authority now vested in the Interstate Commerce Commission with respect to communications companies, and also take over the responsibilities of the Radio Commission and the Federal Power Commission, with considerable added authority in certain respects. In the report of John E. Benton, general solicitor of the association, which reviewed the bill in considerable detail, attention was directed in particular to the fact

that the proposed commission would enjoy a marked increase in authority over telephone and telegraph companies as compared with that exercised by the Interstate Commerce Commission, and that its passage would result in a pronounced decrease in the power now exercised by the state commissions over telephone companies.

The Couzens' bill was also touched upon in the report of the Committee on Legislation, which definitely opposed any legislation providing for increased federal power in the regulation of telephone, telegraph and power companies. This view was endorsed by the association through appropriate resolutions. The gradual encroachment of federal authority over matters of purely local concern was the subject of a special roundtable discussion led by Adolph Kanneberg of the Wisconsin commission, who contended for more effective regulation by the states as a means of disarming the advocates of federal regulation, but Commissioner J. S. Benn of Pennsylvania, while opposing federal encroachment with equal emphasis, was of the opinion that federal regulation of purely local service could not be justified on any ground.

Renew Endorsement of Pending Motor Transport Legislation

So strong was the feeling against the Couzens' Senate Bill No. 6 that it came very near having the effect of defeating a resolution endorsing the amended Parker (now the Couzens') bill for the regulation of motor transport in interstate commerce. The Parker bill, the need for its enactment and the efforts made by representatives of the association to secure its enactment were thoroughly discussed at the convention of the association held last year at New Orleans, and the Committee on Legislation and the Special Committee on Motor Vehicle Legislation were empowered to exercise their discretion in endorsing, on behalf of the association, such amendments of the Parker bill as appeared necessary to secure its passage. The reports of these



two committees, as well as the report of General Solicitor Benton, reviewed in considerable detail the efforts which had been made during the past year to secure the enactment of a motor transport act, and a resolution passed by the executive committee endorsing the bill in its present form was submitted to the convention for ratification. Being submitted immediately after the adoption of a resolution condemning the Couzens' communications and power regulation bill, some confusion ensued, as a number of members could see no reason why increased federal regulation should be endorsed in one case and not in the other. However, after a number of members had emphasized the need for federal regulation and S. A. Markel, chairman of the Legislative Committee Motor Bus Division, American Automobile Association, who had been invited to speak, endorsed the bill in its present form, the resolution was adopted with a large majority.

Owing to the fact that President Lewis E. Gettle, chairman of the Wisconsin commission, was unable to attend because of ill health, Vice-President Charles Webster, of the Iowa commission, presided, assisted by Secretary James B. Walker, secretary of the New York Transit Commission. The election of officers resulted in the advancement of Vice-President Webster to president and the election of H. H. Hannah, chairman of the Tennessee commission, and J. J. Murphy, vice-chairman of the South Dakota commission, as first and second vice-presidents respectively. Secretary Walker, General Solicitor Benton and Assistant Secretary C. S. Bailey, were re-elected. It was decided to hold the next convention at Charleston, S. C., on November 12-15, 1930.

I. C. C. Well Represented on Program

In addition to Chairman Lewis, the Interstate Commerce Commission was represented by Claude R. Porter and Frank McManamy, the latter having a place on the program as chairman of the Committee on Grade Crossings. Chairman Lewis appeared before the convention in an unusual role, that of the producer of moving picture film on the history of transportation, which was presented at a special evening meeting. He confined his remarks to a brief introduction in which he said that he had been prompted to undertake the compiling of the film because of his conviction that a permanent record ought to be made of the various steps in this important phase of human progress. He gave credit to the English Centennial of 1925 and the B. & O. Centennial of 1927, as well as other sources from which the film was compiled.

Chairman Lewis also responded to an invitation from the chair at one of the regular sessions and described the efforts being made by the commission to meet the demands of its enormous docket. As the result of a

comprehensive plan, he said that the docket was reduced from 2708 to 2458 cases in the last year and that he expected it to be reduced to 2300 cases during the coming year. In explanation of the commission's action in the drafting of a consolidation plan, he stated that the commission had decided it could no longer ignore the mandate of Congress after its repeated efforts to be relieved of this responsibility had been unsuccessful. His comment on the O'Fallon decision was limited to the statement that "the decision did not settle everything but it has clarified the atmosphere." He also added that a recapture bureau is being organized to make vigorous progress in recapture proceedings. He solicited the fullest possible co-operation of the state commissions, and endorsed the association's action in the appointment of an assistant solicitor general to represent it in valuation proceedings.

Laud Railway Safety Record

Unlike the previous reports of the Committee on Safety of Operation, the report, presented this year, ignored almost entirely those phases of accident prevention having to do with safety devices or other matters in which regulation by governmental agencies is a factor. Instead, the report was devoted to a review of what the railways and utility companies have done



Great Northern Officials Welcome I. C. C. Members to Glacier Park

Beginning at the left, Ralph Budd, president, Great Northern; Frank McManamy and Claude R. Porter, I. C. C. Commissioners; L. Dennis, chairman, and L. C. Young, member of Montana commission; W. P. Kenney, vice-president, Great Northern; E. I. Lewis, chairman, I. C. C.

in controlling the human influence in accidents, and in doing this, gave the railways full credit for the marked improvement in their accident record from year to year, as stated below:

"The American railways, pioneers in accident prevention work, offer an admirable example of the value and results that may be obtained through a serious consideration of a safety program. Accidents in this field have steadily decreased over a period of years while production has concurrently increased."

This statement was supported by statistical summaries of the railway record in reducing the accident rate, with similar but less detailed figures for the public service companies, to the decided advantage of the former. The report also suggested a new field for the promotion of safety work by the railways and public service companies; namely, that of exercising a greater degree of supervision of construction work done under contract. It was proposed that a clause be included in construction contracts providing for supervision of the work by a safety agent representing the railroad or utility.

Other Features of the Program

Most of the invited speakers took an optimistic view of the adequacy and effectiveness of state regulation, but Governor Clyde Reed of Kansas and Marcus A. Wolff, editor of the Newark Evening News, assumed a more inquiring attitude. In the opinion of Governor Reed, the current tendency toward consolidation was leading to what he characterized as an "industrial feudalism." He traced the gradual increase in federal authority over matters of purely local concern which were formerly within the control of the states and voiced the fear that unless this movement toward centralization was retarded, the state regulatory bodies would soon have but little authority. He also decried the tendency of the courts to assume fact-finding and administrative prerogatives which in his opinion belonged exclusively to the commissions. He said that the commissions were in part to blame for the predicament in which they find themselves because of a failure to secure constructive publicity for their work.

Mr. Wolff's paper proceeded along similar although more conservative lines and was particularly emphatic in urging the commissions to develop a better understanding of their work on the part of the public through the newspapers. "I believe," he said, "it is possible to obtain a better relationship between the commissions and the press. I believe that regulatory commissions can use the press as an excellent medium of reaching the people, can educate the public through the newspapers."

A report by L. R. Bitney, statistician for the Minnesota commission and chairman of the committee on Statistics and Accounts of Railroad Companies, related to the proposed revised classification of I. C. C. accounts and consisted of answers to the exceptions and criticisms of the revised classification offered by representatives of the railroads in hearings before the Interstate Commerce Commission. It was received without comment.

The Committee on Uniform Regulatory Laws submitted the draft of a public utility act for uniform adoption by the states, this bill having been drafted in co-operation with the Public Utility section of the American Bar Association and the National Conference on Uniform State Legislation. The committee recommended the ratification of the bill by the association, but expressed the opinion that it fell short of what it should embody from the standpoint of the regulatory

body. The committee had also been instructed to prepare a uniform act for the regulation of common carrier motor coaches and trucks but reported that it had not completed its work on this assignment.

The Committee on Railroad Rates, of which Claude L. Draper of the Wyoming commission was chairman, presented a long report reviewing recent rate cases and giving a detailed synopsis of proceedings under the Interstate Commerce Commission Order 17,000 pursuant of the Hoch-Smith resolution. The report also included expressions of the committee's attitude on matters relating to current influences affecting railway rates, but was received without comment.

The Committee on Air Transport Regulation, which had been instructed to gather information relative to existing legislation on this subject submitted a report reviewing the progress on such legislation in the various states, including the draft of a bill now before the legislature of North Dakota.

Abstracts of two committee reports and the addresses of President Gettle and Ralph Budd are given in following columns.

Entertainment Features

Owing to the congested program, it was impossible for the members of the association to take advantage of the scenic attractions of Glacier Park during the four days that the convention was in session. However, through the courtesy of the Board of Railroad Commissioners and Public Service Commission of Montana, arrangements were made for a boat trip up St. Mary's lake and to "Going-to-the-Sun" Mountain on the Monday preceding the convention, while following the convention the members and their guests were taken on an automobile trip from the Many Glaciers Hotel to the Prince of Wales Hotel at Waterton Lake, Canada. On Sunday, September 1, the convention party left by special train over the Great Northern to the western entrance of Glacier Park and thence by motor cars along the shore of Lake McDonald and by mountain road to Logan Pass and return.

President Gettle's Address

In the absence of President Gettle, the president's annual address was read by P. H. Porter, attorney for the Wisconsin commission. It covered many phases of the association's activities but was confined in large part to a study of the powers of regulatory commissions and to the participation of the association in proceedings under the Hoch-Smith resolution. Abstracts from the address are as follows:

One of the outstanding services performed by state commissioners and state commissions has been the patient, self-sacrificing participation in the practically nation-wide rate cases in co-operative capacity with the Interstate Commerce Commission. Recently this association was rather severely criticized for its participation in the cases affecting rates on products of the farm with special reference to the argument of our general solicitor in the Grain Rate case. The criticism appeared in a weekly magazine with nation-wide circulation. Among other things it said:

"In urging a general reduction in freight rates on grain on the ground that agriculture is unprosperous, a point of view is being enunciated that may later be seized upon by other lines of business if they become unprosperous. As reported in the press, the counsel of the National Association of Railroad and Utilities Commissioners in an argument before the Interstate Commerce Commission, going the full length of the verbal position of the Hoch-Smith resolution, declared that unless rail rates are reduced, grain production in present volume cannot continue. Granted that current prices of grain are unremunerative, is it known that freight rates for carrying grain are remunerative? Must every industry expect to carry on high

production profitably irrespective of circumstances? Suppose the coal-mining industry were to ask for rates low enough to permit of a high volume of production being resumed. Is it wise to interject variations in freight rates as factors in competitive struggles? We have deep sympathy for agriculture, but we have the fear that in the long run such a freight-rate policy would do agriculture more harm than good."

Many commissioners, and especially the members of the state commissions sitting in co-operation in the various farm product cases before the Interstate Commerce Commission, have recognized that the farm industry generally has suffered more keenly since the deflation period in the early twenties than has any other basic industry in the country. Almost every other industry has not only recovered from the temporary depression, but has pushed forward to amazingly new heights of prosperity. Agriculture has in part somewhat recovered, but land values, or perhaps more accurately, land prices, have continued to reflect the lack of faith in productive profits on the farms.

The criticism cited takes the exceedingly narrow and cynical view that agriculture is merely another competitive business, comparable to steel manufacture or coal mining. It also wholly ignores the position of this association in the grain cases under consideration that the carriers must have this tonnage in the great agriculture states in order to bring about the most favorable use of their equipment; that the freight rates should and must be such as will tend to move this tonnage from the farms to the central markets. The criticism also fails to recognize the principle enunciated in a report as late as the proposed report of the examiners in the Western Trunk Line class rate case; that in part, at least the freight rate charge or burden must be distributed in such manner as the "traffic will bear." The criticism also ignores the fact that the more highly organized industries are equipped with abundant legal, statistical, and other expert services, whereas the farmer is not. With the farm industry's tremendously wide geographical distribution, its diversity of products, hazards of drouth, floods and destructive insects, its measurably localized areas of specific production, its far flung markets for its surplus, and its basic value to the prosperity of all other industries, under such and other modifying circumstances the state commissions would have been highly remiss in their duty, especially in these great agricultural states, had they done any less than to use every means and equipment of their organizations, individually and co-operatively, to lay the actual facts before the Interstate Commerce Commission.

It may be true in part that the state commissions have apparently gone to the length of urging special consideration for depressed agriculture. Even if that be true, it is not such a new, revolutionary and striking thing in the policy of our national government that the great magazine quoted or others of similar thought, should be so shocked at the danger of establishing a new and embarrassing precedent in rate making. I remember very distinctly how more than 30 years ago William McKinley argued for more than two hours for the establishment of a sufficiently high tariff to establish a tinplate industry in this country. One need only casually scan the history of legislation in support of special interests to understand that even if some consideration is being urged by this association in favor of the food producers of our great country, it is certainly not engaged in the establishment of a new and strange precedent which may rise up and haunt and embarrass us at some time in the future.

Ralph Budd Addresses Convention

A brief review of the building of the railways to the Pacific coast and a discussion of some of the elemental phases of the problems of mountain railway construction and operation were the subjects chosen by Ralph Budd, president of the Great Northern, in addressing the convention. After presenting figures affording comparisons of the different routes in terms of mileage, rise and fall, grades and summit elevations, he called attention to the greater cost of constructing and operating mountain lines as compared to railways in flat country, a condition which was early recognized in the granting of government aid. His address continued as follows:

The government gave further aid in grants of land, and other transcontinental railways were built after the completion of the Union Pacific-Central Pacific in 1869, but there was not sufficient population or traffic to support the debt created by government credit and the roads were compelled to reorganize. The fundamental soundness of these ventures has been fully

demonstrated by the later success of the four great early transcontinental systems, the Union Pacific, the Southern Pacific, the Northern Pacific, and the Santa Fe. These roads, as they exist today, are ample justification and vindication, if any were necessary, of the judgment of the private as well as the government officers who were responsible for their being created.

It is true that James J. Hill built without government aid and that his road did remain solvent even though in handling government mail and freight it had to meet the low rates of subsidized lines, but this was because he developed his road and settled the country as he progressed across Minnesota, Dakota, and Montana. He had behind him 3,000 miles of paying system, with little debt, to support the Pacific Coast extension when he started it about 175 miles east of Glacier park. It is not likely any more railway lines ever will be built across the Rocky mountains. Existing routes will be improved, but they are so spaced that in reaching the mountain passes the entire productive country can be fully developed.

The challenge which the great rock wall of shining mountains presented as a check to the expansion of our national boundary has been completely answered by the various transcontinental railways. The ascents and descents, the steep rocky precipices, and the rushing torrents in the canyon defiles all have been overcome successfully. Thousands of persons travel daily across the continental divide by the various railways with the same luxurious comfort that they are accustomed to enjoying on railway trains everywhere.

The employees who operate across these mountains too are entitled to more than ordinary appreciation for the safety as well as the smoothness with which they conduct the transportation.

It remains for the railways with the co-operation of your members and that of the I. C. C. to continue the policy of providing the most modern appliances for safety and efficiency and to place them in the hands of the officers and employees who have developed an especial aptitude in these localities and circumstances. Nothing is more important now than to promote and facilitate the easiest possible communication between the remote parts of our country, not only for the advancement of trade and commerce, but for the further advancement of our national solidarity. Originally, overland communication was necessary to preserve our national unity. Now it is highly desirable to make travel easy and agreeable in order to promote a better understanding of the people and their problems in one section by those who live in other sections. As in so many instances, it is safe to say that the progress already made is the best promise for the future.

Committee on Valuation Reviews O'Fallon Decision

The Committee on Valuation, of which Fred P. Woodruff of Iowa is the chairman, presented a summary of the progress in federal valuation of the railroads and reviewed the plans of the association to maintain a valuation counsel to participate in proceedings under the act. It strongly urged that provision for some sort of representation be perfected, and the convention adopted a resolution providing for the appointment of C. S. Bailey, who has been serving as the association's assistant secretary, to the position of assistant general solicitor to represent the association or any commission in valuation proceedings.

The report consisted in large part of an expression of opinion on the significance of the decision in the O'Fallon case, this portion of the report being presented in abstract below.

It was believed that the decision might have an aggregate effect upon the values of all railroads in the United States exceeding any amount ever before dealt with in any court in a single proceeding. The court, however, contrary to the prevalent expectation, did not either sustain the commission or attempt to determine the weight of reproduction cost evidence. It held that the commission failed to follow the law of the land when it declined to give consideration to enhanced prices in reaching a valuation, and for that reason its order must be set aside. But it clearly repudiated the idea that present cost of reproduction is a minimum measure of fair value. The commission's order was overturned, not because it gave insufficient weight to current prices, but because the court found that such prices were not even considered.

Those who had entertained the expectation that the court would lay down clear-cut rules for the guidance of regulatory

authorities in finding value for rate-making purposes have been disappointed. It may be regretted that the opinion was not more illuminating. It however, clarifies the atmosphere to this extent: It reaffirms the familiar *Smyth v. Ames* rule and definitely negatives the idea that in the Indianapolis Water Company case the court intended to establish a reproduction cost formula, as many have contended.

Reproduction cost is relevant evidence of value in 1929 as it was in 1898. The weight to be given to it doubtless varies with the facts in each case. It must be determined, like the weight of other evidence, by the judgment of the commission. And the commission's decision is subject to judicial review whenever use is made of the commission's value for rate-making purposes, or for recapture. How the court will determine when the commission has given proper weight, and what standard or rule, if any, it will finally announce for the guidance of the commission, remains to be discovered. Much water must yet go over the dam before valuation litigation arising under Sections 19a and 15a will have run its full course. The O'Fallon case is but the beginning.

Heretofore, the commission appears to have been finding the value of a railroad to be its reproduction new cost, less depreciation, plus the present value of the land used for common carrier purposes plus working capital and plus a further sum (usually from 3 to 5 per cent) for going concern and other elements of value to which a specific sum could not be assigned, regardless of the economic value of the property. The court said in the O'Fallon case that "No doubt there are some, perhaps many, railroads the ultimate value of which should be placed far below the sum necessary for reproduction." If the commission takes due note of this portion of the opinion, it is to be expected that the ultimate value of many of the railroads will be reduced materially below the final single sum value reported in the initial valuations already issued.

Recapture

Pending the outcome of the O'Fallon case the commission has held no recapture hearings of consequence. It has been marking time. Now that the decision is known, recapture work will presumably be pressed forward. More than eight years have elapsed since the enactment of the Transportation act carrying the recapture sections. Only a slight amount of work has yet been done. Hence there is a period of more than eight years as to which the commission will be obliged to investigate and make findings as to recapturable excesses, or the lack of them.

When the commission comes to a determination of the property values of the respective carriers in its recapture work the amount of the excess income ascertained will in all probability greatly exceed that which they have themselves computed. Nobody knows the amount that will be due, but it is entirely obvious that the carriers will exert every effort to reduce it to the absolute minimum.

Because of the delay which has attended the performance of the commission's duties in this respect, the amount that will ultimately be collected will be much less than it would have been if the work had been done with expedition. This is because the Supreme Court now holds that interest on recapturable earnings may not be imposed before the issuance of a final order.

The carriers have thus been large winners by the eight years' delay which has already occurred. The situation will doubtless lead the commission to make what speed it can in its recapture work, but it will be a long time at best before it can make the necessary findings upon which to compute the recapturable excesses of roads which have such excesses for any of the years since the Transportation act was passed. And until those excesses are determined and fixed by orders the carriers which owe them to the commission will be relieved entirely from the payment of interest thereon.

Present Statistics on Grade Crossings

The Committee on Grade Crossings, Elimination and Protection, presented voluminous statistics on the mileage of highways, the number of crossings with railways, types of protection, progress in elimination and other allied data. Its report also included discussion of the problems of protection and elimination from which the following was abstracted. The report was presented by Frank McManamy of the Interstate Commerce Commission as the chairman.

There has been no definite downward trend in the record of

grade crossing accidents and their resulting casualties and while all due credit should be given for the beneficial results of efforts which have been made to regulate traffic and campaigns to reduce grade crossing accidents, it is nevertheless apparent from the record that present means of affording protection have not kept pace with the needs of the public and the demands of modern methods of transportation. Unless and until adequate protective measures are applied, it appears fairly certain that grade crossing accidents will continue to exact a toll of approximately 2,000 to 2,500 lives and injuries to some 6,500 persons each year.

Considerable publicity has been given to an estimate that a sum corresponding roughly with the total present value of the railroads would be required to eliminate all of these crossings at grade, and the conclusion based upon this estimate that this would be utterly impracticable except over an extended period of years. Certainly when viewed as a whole it is a tremendous problem, but that should not discourage us because that is not the way grade crossings are removed. They are removed one at a time and if the problem is vigorously attacked by the tremendous public and private interests involved far greater progress can be made than has been manifest in the past.

In many instances proceedings for elimination of grade crossings have resolved themselves into controversies or contests between the railroads on the one hand and the public or public authorities on the other. This has no doubt been largely due to the division of expense of such undertakings, the railroads generally being required to assume from 40 to 70 per cent of the cost of grade separation, and for this expenditure little if any direct return could be shown. In recent years, however, changed traffic conditions have materially increased the interests of and benefits to the railroads which are promoted by grade crossing elimination.

Crossing Dangers Increasing

From the standpoint of railroad operation, the dangers at grade crossings have materially increased. Derailments of trains due to collisions between trains and automobiles in 1928 totaled 49 and resulted in the death of 22 persons and the injury of 47. Busses, trucks, tractors and trailers, and even large automobiles, when struck on a crossing, may form an obstruction as damaging to the train striking it as a railroad car itself.

The railroads also have an important and increasing interest in the grade crossing question from the standpoint of users of the highways. The following figures have been compiled from returns as of June 1, 1928, of steam railroads covering distance hauling as distinguished from intracity traffic:

Number of railroads operating motor coaches.....	64
Number of motor coaches operated	1,047
Number of motor coach routes operated.....	340
Aggregate motor coach route mileage.....	14,805

The records for motor truck operation by the railroads show as of June 1, 1928:

Number of railroads operating trucks.....	45
Number of trucks	4,902
Number of routes	298
Aggregate motor truck route mileage.....	3,521

Effect of "Stop" Laws

In many states, experience with the "Stop" law, that is, the law requiring all vehicles on the highway to come to a full stop before passing over any railroad crossing at grade, indicates that enforcement of this requirement is not practical; reports from several states where this law is on the statute books are to the effect that it is not generally observed.

A grade crossing becomes a point of danger to highway traffic only when a train is closely approaching it.

One of the oldest forms of protective devices to indicate the approach of a train, the automatic crossing bell, has apparently outlived its usefulness in so far as the bulk of highway traffic is concerned. With closed cars, busses, and trucks, an audible signal of this nature is likely not to be heard by the driver in time to be of any real service as a warning device. At crossings where there is considerable pedestrian traffic, bells may still serve a useful purpose.

Crossing gates, attended and operated by watchmen, have been extensively used but in many locations other forms of protective devices have been substituted, chiefly because with the greater use of automobiles highway traffic at night and in the early morning hours has greatly increased, and when not operated continuously an open gate may invite the very disaster it was designed to prevent. Some experimental installations have been made of gates controlled by track circuits and operated automatically. While in some locations the application of devices of this character appears to present interesting possibilities, certain problems and elements of hazard are also in-

volved, and the results of these trials do not as yet warrant any definite or general conclusions.

Flashlight Signals

The trend at the present time is almost universally toward the installation of flashing or swinging light signals to indicate the approach of trains. The application of devices of this type has the important advantages that the indications which are displayed when a train is approaching are distinctive and sufficiently similar or uniform in character when different types of apparatus are employed that there should be no difficulty on the part of automobile drivers in recognizing them and knowing instantly or sub-consciously their intended meaning. On the other hand, certain problems and difficulties are presented in connection with their application and installation. With any device of this character which is controlled automatically by approaching trains the distance from the crossing at which an approaching train first starts the operation of the device must be sufficient to permit the fastest train over the line to display the warning signal at the crossing a sufficient time interval before the arrival of the train at the crossing.

These conditions result in a crossing signal often being displayed while it is still safe for highway traffic to proceed across the track. The display of a danger signal when danger does not exist or the disregard of a danger signal under any circumstances by those for whom it is displayed is undesirable, as it tends to diminish respect for the danger indication and to detract from the strict observance of its requirements which is essential if the protective device is to accomplish fully its intended purpose.

There are no doubt many locations where the application of automatic signal devices of this character without the supervision and control of an attendant does not furnish proper or adequate protection. When such devices are installed under the supervision and care of an attendant it is believed provision should be made for manual control in addition to the automatic control of the crossing signal so that the attendant, may control the device so as to cease the display of the warning indication to permit highway traffic to proceed over the crossing when a train is within the control limits but not about to obstruct the crossing.

A position above the center of the highway appears to be the most desirable location for signal devices of this character although obstructions in the highway to support such devices may present a material element of danger; in some cases it may be practical to suspend them over the highway from structures located on each side, as is frequently done with wig-wags. Another suggestion which has been made to increase the range of visibility is to provide for the display of signal indications in both directions by devices installed on both sides of the crossing. Another suggestion which appears particularly applicable where the view of the crossing when approaching on the highway is materially obscured is to locate a control approach signal on the highway operated in connection with the signal at the crossing, such a signal to display a flashing or swinging yellow light.

Double Track Operation Increases Hazard

One of the outstanding facts disclosed by reports of grade crossing accidents is the large number of accidents which result because a motorist after waiting for a train on one track to pass then proceeds directly into the path of a train approaching on another track. It is the practice in some locations to indicate on the crossing sign the number of tracks at multiple track crossings. It appears likely also that the display of warning signals in both directions on both sides of the track will have a tendency to reduce accidents of this character.

A form of "second train indicator" is being tried out at a number of crossings on the Southern Pacific in California. It is installed in addition to existing wig-wag signals, and it gives distinctive visual and audible indications, by means of a quick vibrating bell and an illuminated sign, when a second train is within the limits of the controlling track circuits.

In all of the movements and campaigns for safeguarding traffic, education has been recognized as a factor of the highest importance. It may seem scarcely credible that there are considerable numbers of automobile drivers who actually do not know that the display of flashing light signals at a crossing, or the operation of a wig-wag, indicates that a train is approaching, but that fact has been demonstrated repeatedly, and an examination of a representative number and class of automobile drivers, would undoubtedly disclose a very great need for definite information as to the meaning of these signals and the requirements which should be observed when they are displayed. A signal device unless observed, understood and heeded can be of little avail in preventing accidents.

February Train Accidents

OF the train accidents reported to the Interstate Commerce Commission by the railroads in February, 14 were made the subject of special inquiry by the Commission's Bureau of Safety; and the paragraphs given below contain the salient points in the reports of the director of the Bureau on these accidents—11 collisions and 3 derailments.

Louisville, Henderson & St. Louis, Soaper, Ky., February 1, 3:39 a. m.—Eastbound passenger train No. 146 ran past the station at Soaper, disregarding a dispatcher's order requiring it to wait at that point until 3:45; and, after running a short distance farther, collided with westbound freight No. 167, which was moving at 30 or 40 miles an hour. Both locomotives were wrecked, as were many cars, and there was considerable damage by fire. The engineman, fireman and an express messenger on No. 146 and the engineman, fireman, and one brakeman on No. 167, were killed; no other injuries reported. It appears that the engineman of the passenger train had not forgotten the order, but that he confused the number of the engine of the freight (58) with that of the engine of another freight (59) which was standing on the side track at Soaper. Whether or not the engineman had shown his orders to the fireman is not known. The report blames the whole crew of No. 146, the conductor and the rear brakeman having taken no measures to identify the train standing on the siding. The conductor and the flagman admitted that it was their duty to check engine numbers of trains met; they said that in this case they attempted to do so but failed because of steam and smoke and the speed of their train. The engineman had acknowledged the wait order, had reduced speed approaching Soaper, and had then soon increased the speed, which they said gave them the impression that he had identified the train on the side track. This section of the road is traversed by eight first-class trains and six second-class daily, and, says the report, "traffic of this density is sufficient to justify serious consideration of the question of installing a block signal system."

St. Louis-San Francisco, Megargel, Ala., February 3, 6:45 p. m.—Northbound passenger train No. 908, moving at from 30 to 40 miles an hour, ran over a misplaced switch and collided with a freight car standing on a side track; and the engineman was killed. It appears that the switch had been set for the side track and locked in that position, and the lamp was not burning. Because of the ascending grade approaching this switch, the headlight of the locomotive would not illuminate the switch target until within 500 ft. of the switch, and it appears that the engineman did not know of his danger until the fireman shouted to him. A negro was suspected of tampering with the switch but, at last accounts, he had not been found.

Baltimore & Ohio, Willow Valley, Ind., February 8, 1:05 a. m.—A westbound freight train, extra 2896, moving at between 10 and 20 miles an hour, ran past a switch where it should have entered the siding and collided with eastbound freight train No. 94, which was at a standstill. One employee was injured. A brakeman of the standing train had started to open the switch for the westbound train but he was unable to complete the operation before the train reached him, and ran away, because of probable danger to himself. The inspector finds that the engineman of the extra was not unaware that he was to meet No. 94 at Willow Valley, but cannot decide whether he simply was too

slow in applying the brakes or had been unable because the brakes had not functioned properly. The engineman thought a tramp may have closed an angle cock. Although one angle cock was found closed, it is believed that it was turned as a result of the smash-up. The main criticism in the report is concerning the care of the air brakes; it is held that they had not been properly inspected and tested before the train started out; the trainmen assured themselves that the train line was cut through from the locomotive to the caboose but, says the report, this is not a satisfactory test of the brakes.

Central Union Depot, Cincinnati, February 8, 8:42 p. m.—A part of Baltimore & Ohio passenger train No. 22—a locomotive and three baggage cars—which had just arrived at the Central station, on track No. 3, was being slowly backed out when it ran into the side of a Louisville & Nashville passenger train on track No. 2; and one employee was killed and one employee and two other persons were injured. The yard conductor in charge of the Baltimore & Ohio train had connected his back-up hose for the purpose of controlling the speed of his cars while being backed out but had neglected to open the angle cock, and he was unable to apply the brakes. This conductor's testimony was confusing and contradictory. The engineman of the engine pushing the cars is also held at fault as he had not seen that the brakes were tested by the conductor before starting to back out; also, he was inside the cab when he should have been watching for hand signals. Both of these men were trainmen of long experience.

Union Pacific, Council Bluffs, Iowa, February 8, 10:10 p. m.—Collision within yard limits between two locomotives coupled together, without train, and a freight switching movement, both trains moving at low speed; one brakeman was killed. Responsibility is placed on a brakeman for not maintaining proper look-out and on the leading engineman on the light locomotives. The brakeman at fault was the one fatally injured and the reason for his failure cannot be known.

New York, New Haven & Hartford, Fall River, Mass., February 14.—A southbound freight train having been stopped on a descending grade and the locomotive and five cars having been moved forward preparatory to having other cars cut out, the rear portion of the train started unattended and ran down the grade a short distance uncontrolled; and, entering a cross-over, collided with a locomotive, causing the death of the engineman. The inspector finds that the power brakes were not skillfully set before the parts of the train were separated and that not sufficient hand brakes had been set to hold the rear portion on the grade; the responsibility is charged against the engineman, the conductor and the head brakeman. The inspector finds that the process by which cars were detached from this train in this location is a regular thing and that neglect of proper precautions has been habitual. It is stated, however, that the superintendent in charge of the division has been in that position for only five months and that he had begun systematic conferences with conductors and others concerning various questions of safety in the management of trains; but the conductor at fault in this case had not yet been reached in this series of conferences.

Illinois Central, Newton, Ill., February 16.—A northbound extra freight proceeded from Newton in the face of a superior southbound train (freight No. 281) and after traveling about two miles collided with it; one employee and one caretaker in charge of a car of live poultry were injured. The conductor of the extra, in checking the train register at Newton, read the wrong page and noted on his slip that train 281 had arrived in Newton, when in fact he was reading the page for the

preceding day. He said that the only possible explanation of his error was that the wind incident to the opening and shutting of the door, had blown the page of the register over and he had read without noticing the date.

Toledo, Peoria & Western, Breeds, Ill., February 18, 5:50 a. m.—A light engine, No. 54, moving at good speed, ran into the rear of a preceding mixed train, which was moving very slowly, and the coach at the rear of the mixed train was crushed at both ends. Two passengers were injured. The speed of the mixed train had dropped to a low rate, on an ascending grade, because of the sticking of a brake on one of the cars, and the conductor and flagman of this train are held responsible for the collision. The report rehearses a good deal of contradictory testimony, but the inspector is satisfied that the slackening of the speed of the train had been continued long enough to require the use of a fusee, but no adequate flagging was done.

Pennsylvania, Hoagland, Ind., February 18, 3:28 a. m.—Eastbound passenger train No. 200, moving at very low speed on a side track, was derailed at a facing point switch and two cars were overturned. Three passengers were injured. The inspector finds that the switch was partly open and it is believed that it had been handled by some person who failed to push the lever of the stand down a sufficient distance to engage the locking mechanism; but nothing more definite was learned.

Peoria Terminal, Bismark Siding, Ill., February 20, 6:43 a. m.—Eastbound passenger train No. 1 consisting of a locomotive (C. R. I. & P. 2030) and eight wooden coaches, the locomotive moving backward, was derailed, and six cars were overturned and fell down a bank. Of the passengers, who were miners being carried to work, six were killed and 91 were injured. The train was moving at moderate speed and the derailment was due to defective track, fault being found both in a rail and in a splice bar. It is believed that the joint had been allowed to remain in a defective condition for a considerable period of time. The train carrying the miners to and from work is the only passenger train which is regularly operated over this track.

Great Northern, Sunburst, Mont., February 20.—Westbound passenger train No. 239, moving at about 20 miles an hour, was derailed by snow on the track, and the fireman was killed; two other employees were injured. The commission's inspectors did not examine the track until 48 hours after the occurrence of the accident but the witnesses who were examined felt sure that snow, packed very hard and mixed with some dirt, was the cause of the derailment; and the investigation did not lead to any different conclusion. The section foreman, who has a section of 11 miles, had been unable to go over the road with his motor car on the day of the accident because of snow on the track, but he went over the section on a passenger train.

Mobile & Ohio, Humboldt, Tenn., February 20.—Northbound freight train No. 54, second class, moving at 18 miles an hour or faster, in a snow storm, entered the yard at too high speed, ran over a misplaced switch and collided with a southbound freight train, No. 73, third class, which was switching; the fireman of the northbound train was killed and a man taking care of poultry on the train was injured. Rehearsing much contradictory testimony, to the extent of three pages, the report holds that the engineman of the northbound train was responsible, having neglected to run with proper caution within yard limits. The report says that the yard-limit rule had been a recent subject of discussion with this engineman and he had been especially warned by the trainmaster. The engineman claimed that the brakeman, or fireman, or both, had given him word, ap-

proaching this yard, that the southbound train was clear of the main track; but this leaves unexplained his entering the side track against a switch target indicating that the switch was open.

Reading Company, Laurel, Pa., February 26, 8:20 a. m.—A work train moving northward at low speed collided with southbound passenger train No. 702, consisting of a single gas-electric passenger car; 29 persons were injured—three passengers, one mail clerk, five train employees and 20 other employees; and one of the train employees, the flagman of the work train, subsequently died. The work train had orders to protect against the passenger train, and the passenger train, running under a manual block system, had a permissive card stating that a train was to be expected within the three-mile block in which it was running. The passenger train had been brought to a stop, or nearly so, before the collision occurred. The inspector puts the blame principally on the conductor of the work train; he had directed the brakeman to flag the passenger train but did not have a sufficiently definite understanding with him as to just where it should be held.

Northwestern Pacific, Largo, Calif., February 28, 11:48 a. m.—Northbound passenger train No. 2, ignoring a meeting order which had been received four miles back, ran past Largo station, at which it should have met a southbound freight, and collided with the freight while moving at about 30 miles an hour, the freight at the same time moving at about half that speed. The engine-man of the passenger train and the engineman and fireman of the freight were killed and 34 passengers and four employees were injured. The inspector finds that all of the crew of train No. 2 were responsible for forgetting the meeting order. All of them, except the flagman, had a clear understanding of the order, and the surviving fireman said that he forgot it before arrival at the meeting point, and consequently did not call the order to the attention of the engineman. The conductor and the brakeman claim that they had not realized that their train had passed Largo until after the collision, although they were not engaged in anything that would distract their attention. The flagman had not seen the orders and the inspector censures him for not having asked the conductor to see them, as he knew that the train order signal had been displayed at Hopland, where the order was received. The rules did not require him to ask the conductor, but, says the report, his own judgment should have prompted him to show some interest in the matter.

* * *



Santa Fe Yards in San Bernardino, Cal.

Looking Backward

Fifty Years Ago

A list compiled by the *Railway Age* shows no less than 148 different roads, all of three feet except 7, lying in 34 states and territories.—*Railway Age*, September 4, 1879.

The success of the freight handlers of the Lake Shore & Michigan Southern (now a part of the New York Central) at Chicago in securing an advance in wages to \$1.15 a day has induced the truckmen on several of the other roads to strike for an increase to \$1.25.—*Railway Age*, September 4, 1879.

The New York Central & Hudson River Company has been building a number of small box cars which are carried on four wheels and are not more than two-thirds as long as the ordinary box car. It is expected that they will be very convenient for local traffic going to way stations where the ordinary cars now have to be sent with only half a load.—*Railroad Gazette*, September 5, 1879.

Twenty-Five Years Ago

It is reported that the New York, New Haven & Hartford has ordered that no trains of over 10 coaches shall be run over its road, and trains shall consist of less than 10 coaches where possible. Hitherto the practice has been to run as many coaches as the traffic demanded. The company believes it loses more by failure to keep schedule time than it will lose by running trains in sections.—*Railway and Engineering Review*, September 3, 1904.

The Grand Trunk Pacific Railway now has under consideration the selection of a terminus on the Pacific coast. The choice must be approved by the government, the representatives of which include the minister of marines and fisheries, the deputy minister, a representative of the parliament, and the commodore of the department's fleet. Three points have been proposed for the terminus,—Port Simpson, Kitemat and a port south of Port Simpson.—*Railway and Engineering Review*, September 3, 1904.

Ten Years Ago

An authorization of an additional appropriation of \$17,000,000 to complete the construction of the government's Alaska railroad between Seward and Fairbanks was voted by the House of Representatives on September 6. The original appropriation for this work was \$35,000,000 but because of the increased prices of materials and the increases in wages this was found insufficient.—*Railway Age*, September 12, 1919.

A delegation representing the railroad shopmen recently called upon Governor J. P. Goodrich of Indiana and urged the establishment of a state mediation committee to investigate strikes and threatened strikes before calling out state troops "unnecessarily." It was pointed out that great expense could have been saved the state if troops had not been sent to Hammond, Ind. to end the recent disorders resulting from the strike of employees at the plant of the Standard Steel Car Company.—*Railway Age*, September 5, 1919.

Outstanding developments in the labor situation affecting the railroads during the past week have been the following: Executive officers of the shop craft unions, after a conference with Samuel Gompers, who has just returned from Europe, and the executive council of the American Federation of Labor, advised the shop employees that a strike at this time would be a fatal mistake. Train employees of the steam railroads on the Pacific coast who had walked out in sympathy with the striking employees of the Pacific Electric, returning to work after Director General Hines had issued an ultimatum announcing that the entire power of the government would be exercised to carry on railroad service; President Gompers and the executive council of the American Federation failed to endorse the Plumb plan.—*Railway Age*, September 5, 1919.

Communications and Books

Why Choose Salesmen by Seniority?

TO THE EDITOR:

A popular ticket agent of a large transportation system located in a midwestern city of 55,000 population is soon to be pensioned because of the age limit.

There are thirteen passenger trains departing from this station daily, one of which carries a local sleeper through competitive territory. In addition there are three passenger trains of a tenant line departing each twenty-four hours.

Under similar circumstances most business organizations (other than railroad) would be giving considerable thought to filling the vacancy properly. In spite of the fact that the ticket agent is responsible for the welfare of the department in that particular city, the passenger traffic officers are resigned to the fact that it is a "bid" job. The longest whiskers gets the job.

No effort has been made to transfer the position to an appointive list nor has any effort been made to train any prospective employee for the position. In face of declining passenger revenue it is surprising that so few passenger departments are making any effort to improve their sales organizations.

It is true that with the present labor situation the department is almost forced to take the agents that bid in the smaller agencies but it is not excusable that the passenger departments take no interest in improving the men for their respective positions which would later reflect to the better interests of the department.

Passenger departments could well consider the formulation and maintenance of a correspondence course in salesmanship for their own employees.

UNIVERSITY RAILROADER.

How To Expedite the Final Valuation of the Railways

TOLEDO, OHIO.

TO THE EDITOR:

If an inventory is necessary as a basis for (a) rates, (b) recapture liability, and (c) consolidation, then these inventories should be completed and made perpetual at the earliest possible moment.

The Interstate Commerce Commission in its O'Fallon report, which is characterized by Mr. Justice McReynolds as "long and argumentative," asserted that a fixed and stable rate base is of great importance. The commission said: "... there must be assurance of stability in the rate base. If it is permitted to fluctuate with each change in general price level, and if rates must be adjusted accordingly, there can be no promise of a stable return to investors. But if current cost of reproduction is to be used as the basic measure, wide and frequent fluctuations both up and down are inevitable." (124 I. C. C. 30)

This statement is unsound, obscure and misleading. Inevitably a rate base must be founded on property values which change from year to year, so the rate base is bound to change accordingly. What is wanted is a simple, practical valuation method, by means of which property values may be determined or forecasted, with reasonable accuracy, at any time.

Property inventories and costs, which have once been determined as of some period of normal market prices, e.g., 1923-8, can be made perpetual through the I. C. C. accounting regulations, if they are amended to provide for the current renewal of all property on the retirement and replacement basis and if the application of the amended accounting regulations is supervised intelligently by engineers and accountants whose duty it is to see that the investment account accurately reflects the cost of all the property that is used currently, or is useful in transportation service.

The commission admits that the Investment Account, as

kept under the effective accounting regulations, does not reflect the value of property. For example, Assistant Director C. V. Burnside, in Finance Docket 5454, Reorganization and Control of Atlanta, Birmingham & Atlantic Ry., says: "... it is to be borne in mind that the 'comparative general balance sheet' prescribed by the commission, considered in connection with the instructions for its use, does not purport to contain a correct statement of capital assets." Absurdly enough, this is true, but it can be remedied easily if the investment account is adjusted as renewals are made and accounted for on the retirement and replacement basis.

The commission was berated quite recently by President Coolidge because of its dilatory methods. The press and certain individuals have also taken the commission to task from time to time for the same reason. Whether the commission deserved these rebukes more than many other governmental agencies is not particularly pertinent here, but probably the only way in which it can be forced to expedite its processes is by application of strong executive pressure. If such pressure had been exerted ten years ago, the commission might have arrived long since at some definite conclusion in its valuation work.

The sole and only reason why valuations are not reported until several years after the inventory is taken, is that every valuation activity of the commission has been, and still is, bound thoroughly, completely and comprehensively by legal processes. For some inexplicable reason, which would not be tolerated for a moment by the management of an industrial concern engaged in private business, the commission decided not only to inventory the railroad property, but to prove legally that thus and so was the inventory. That is why, for example, the field and office record of inventory of a property of 400 miles long constitutes a stack 3 ft. high of 8½-in. by 11-in. pages, while the legal record of the hearing constitutes about 4,000 pages of transcript and makes a stack of 8½-in. by 11-in. exhibits 13 ft. high. If the commission had relied upon the work done by its engineers, accountants and land appraisers in the field, in the office and in subsequent conferences, all of these valuation inventories would have been completed and published long since. The remedy is obvious to any but a government officer. Seemingly, the only way by which expeditious action can be gotten out of the commission is for the President to insist on cutting out this endless legal process and settle the recapture inventories through engineers, accountants and land appraisers of the commission and railroads. That this is not an idle suggestion will appear, as follows:

About the summer of 1917, the commission found that, contrary to the expectations of Robert M. LaFollette, for such roads as the Boston & Maine and the New York, New Haven & Hartford, replacement costs ran ahead of investment. This being so, presumably for political reasons, the commission resorted to any and every means by which the replacement costs could be pared down. Rules, methods and principles, such as appear in the Texas Midland, Winston-Salem South bound and other early reports, were formulated and all of them were designed to make the cost-of-reproduction dollars squawk. So far as the commission was concerned, the cost-of-reproduction dollars breathed their last when it issued its O'Fallon decision some ten years after the Texas Midland decision. In fact, the commission issued written and unwritten orders to its Bureau of Valuation employees, which required them to find, not a fair or conservative replacement cost or land value, but the lowest cost and land value which could be ascertained under any conceivable circumstances. The attitude was exemplified in the testimony of the engineering supervisor in a recent valuation hearing, in which he stated that if he had two or more equally authentic unit prices for exactly the same property unit, he would choose the lowest for use in his cost-of-reproduction inventory.

Cost-of-reproduction inventories (as set up in the tentative valuations), priced according to the Bureau of Valuation's

starvation prices and principles, are uniformly too low by the following approximate percentages:

Engineering	1 per cent
Overheads (interest included)	6 per cent
Quantities and prices	5 to 10 per cent
Depreciation	10 to 15 per cent
Total	22 to 32 per cent
Land	25 to 75 per cent

All of the above, except the quantity and price item, are too low by reason of fallacious principles laid down by the bureau. All persons who have had experience in valuation cases know that the carriers' protests against these deficiencies get nowhere except as to deficiencies of inventory and unit price. What relief carriers have received has been in the way of adjustments upward of quantities and prices, which were made in formal or informal conferences between the engineers, accountants and land appraisers of the bureau and the carriers, in which lawyers were not allowed to participate. Practically all carriers who have thus conferred with the bureau have received increases which approximate 5 per cent and some carriers have received increases which approximate 10 per cent or more. Thus it appears that the stupendous amount of time and money consumed in the preparation for hearings, the hearings themselves, the preparation of briefs and oral arguments, has availed the carriers (or anyone else) nothing.

In view of these experiences, which have cost the taxpayers and railroads from \$50,000,000 to \$75,000,000, merely to get a legal record in a legal way, which no one will ever read, the wise and practical plan of procedure is to have the replacement unit costs and land values determined by the engineers, accountants and land appraisers of the bureau and carriers in conference. Then, while this work is under way, there should be a consolidated legal hearing of all the railroads in the country to settle matters of principle. Deficiencies in the inventories which are caused by defective and unsound principles and methods, and which should be heard and argued in the proposed consolidated hearing, once for all carriers, result from failure to allow or allow for:

1. Severance and other land damages.
2. Dissimilarity of adjoining lands, and adaptability.
3. Rights in public and private domain.
4. Aids, gifts, grants and donations.
5. Contract and leasehold rights.
6. Promotion.
7. Cost of marketing securities.
8. Taxes during construction.
9. Development cost.
10. Going concern cost.
11. Contingencies.
12. Depreciation accrued during construction.
13. Actual (not theoretical) depreciation in the light of the effective operating accounting regulations.
14. New cost prices for property units in a "second cycle of use."
15. The effect of current market prices for labor and material.
16. Preliminary surveys.
17. Assessments for public improvements.
18. Consequential damages and costs incurred off the right-of-way.
19. Property used, not owned.

After the carriers have been heard as to the above matters, the commission may then reaffirm or change the principles heretofore laid down and apply them to the inventory of any railroad which the commission sees fit to designate and, having done so, this railroad with its revamped inventory may be sped through the courts as fast as the court machinery will permit. While this legal proceeding is under way, the technical employes of the bureau and railroads will have ironed out their differences in quantities and prices. Then, as soon as the court acts, the approved principles may be applied to the inventories of all railroads.

In a few words, the above scheme merely boils down to a minimum the legal processes, which are what have consumed the greatest amount of time and money, and has all matters of inventory and price settled in a practical way in conference.—W. M. HOOVER, Valuation Engineer, Toledo Terminal Railroad.

New Books

R. A. O. A. Arbitration and Appeal Cases. Index Digest No. 1. A 6 in. by 9 in. Pamphlet. 72 Pages. Published by the Railway Accounting Officers Association, Washington, D. C.

This pamphlet is an index and digest of arbitration and appeal accounting cases decided since the publication by the Railway Accounting Officers Association of Volume II of its Compendium of such cases. It is contemplated that a similar pamphlet will be issued quarterly hereafter. The cases are summarized in a rather more condensed form than that previously used. A total of 188 cases are digested in the present issue.

Transportation—A survey of Current Methods of Study and Instruction and of Research and Experimentation, by Victor Topping and S. James Dempsey, 179 pages, 6 in. by 9 in. Bound in Paper. Privately Printed for the Committee on Transportation, Yale University, New Haven, Conn.

The authors of this study were holders of Strathcona Memorial Fellowships in Transportation at Yale University and their survey covers thoroughly the entire field of transportation instruction in this country—the nature of the courses offered at colleges and universities, research organizations, sources of information, etc. The need for education in transportation is discussed and the educational and training plans being carried on by railroads themselves are described. The technical schools are not neglected, and transportation other than railroad is also included. The book should be most helpful not only to schools and colleges, in planning their instruction in transportation, but should also interest railroad officers who have an eye to the future and are concerned with improving the ability and efficiency of railway personnel.

The Ideals of Engineering Architecture, by Charles Evan Fowler, consulting engineer, 300 pages, 6 in. by 9 in., illustrated. Bound in cloth. Published by the Gillette Publishing Company, 221 East Twentieth Street, Chicago. Price \$4.00.

Engineers receive no formal education in æsthetics and Mr. Fowler's book represents an effort to provide the designers of bridges, dams and other engineering works, with some knowledge of the rudiments of architectural composition. This is not an easy task. Good taste is to some extent a matter of opinion. What one may deem beautiful, another may regard ugly. Nevertheless, the author has succeeded in offering some wholesome advice without resorting to the high flown patter of the art critic. While devoting some attention to the exposition of such fundamentals as simplicity, symmetry, harmony and proportion, the treatment is primarily that of a constructive discussion of a great many actual structures, illustrated in the text, pointing out their good points as well as their defects. The book should prove of definite help to the designer, regardless of the kind of structure with which he is concerned, for the principles discussed are applicable to the monumental and the humble structure alike.

Report of the Bridge Stress Committee, 215 pages, illustrated 8 in. by 13 in. Price \$4.65. Published by the Department of Scientific and Industrial Research, 16 Old Queen street, Westminster, S. W. 1. London, England. Available at the British Library of Information, Room 1003, No 5 East 45th street, New York.

This report represents the result of an exhaustive study of impact on steel bridges of the railways of England by a committee of engineers selected by the Department of Scientific and Industrial Research of Great Britain. Although undertaken after a thorough study of the results of similar investigations in other countries, notably the United States and India, the investigation proceeded along distinctly original lines, a particular effort being made to supplement actual tests on many bridges with an analytical study of the laws of "resonance" in bridges in terms of the "hammer blow" of locomotives. The report is presented in an attractive manner and with the aid of excellent diagrams and charts, offers an unusually lucid exposition of a distinctly involved subject.

While American engineers may question the applicability of the findings of this committee to bridges on this side of the

Atlantic, it is clear that the report affords a fund of new information on this interesting subject, particularly as to the effect of the relation between the frequency of the vertical oscillation of the span to the frequency of the hammer blow, the effect of the weight of the moving load on the period of oscillation, the influence of rail joints, etc.

The method offered by the committee for the practical application of its findings to the design of bridges comprises a distinct departure from the conventional formula for an impact percentage to be applied to the live load. The committee considers such formulas of no value, on the ground that the tests disclosed no relationship between live load and impact. Instead, the committee offers a series of tables of equivalent uniform loads, designed to include the effect of both live load and impact, in terms of span length, class of live load and number of revolutions of drivers per second.

Railroad Regulation Since 1920, by D. Philip Locklin. Bound in cloth, 198 pages, 8¼ in. by 5½ in. Published by A. W. Shaw Company, Chicago and New York. Price \$2.50.

The author herein presents a brief outline of railroad regulation practices and developments in the United States since the Transportation Act of 1920 broadened the scope of Interstate Commerce Commission activities in these matters. The book is thus, in the main, a discussion of the provisions of that act and an outline of regulatory policies which have developed from an interpretation of these provisions in cases thus far arising under them for review by the commission.

The opening chapters discuss the problems which attended the return of the railways to private control and sketch the financial plans adopted for the refunding of railroad indebtedness to the government, the guarantee of earnings in the transition period, the reimbursement of deficits to short lines dropped from the federal control plan and the granting of new loans to carriers. Rate regulation under the Transportation Act of 1920 is next discussed with specific reference to cases involving the general increase in 1920 and those arising under the new power to prescribe divisions of joint rates. The long-and-short-haul clause, the reduction in the time which a proposed rate may be suspended, the power to prescribe minimum rates and to fix exact rates and the commission's jurisdiction over intrastate rates are together given a chapter.

Next, in his consideration of the Hoch-Smith resolution, the author finds two limitations which will minimize the relief which can be granted the farmer through a readjustment of freight rates. The first of these he holds to be the "well established fact that confiscatory rates cannot be imposed upon transportation companies. Whether or not rates are confiscatory is primarily a question of costs, not of value of service or the ability of traffic to move freely." The second limitation is found in the phraseology of the Hoch-Smith resolution itself wherein it is implied that "full force and effect shall be given to the rule of rate-making as found in section 15a...." From a consideration of these facts, the author reaches the conclusion that "cost factors must receive consideration and that the limits within which rates can be adjusted to relieve financial distress are definitely restricted." He concedes, nevertheless, in the next paragraph that in its practical operation the Hoch-Smith resolution "has not been without significant and perhaps far-reaching consequences." One of its most important effects is found to be its limitation of the granting of horizontal increases in rates. Another is that of augmenting the difficulties of carriers proposing increased rates on agricultural products.

From the foregoing discussion of the Hoch-Smith resolution, the author proceeds to consider in turn the regulation of service, of railway intercorporate relations and finances and the machinery devised since 1920 for the settlement of railway labor disputes. His subsequent discussion of valuation was written prior to the recent decision of the United States Supreme Court in the St. Louis & O'Fallon case. In this chapter the author considers arguments for and against the cost of reproduction theory of valuation and defends the methods employed by the commission, holding that "values arrived at in this manner would be ample to attract additional capital into railway enterprise. This basis has the further advantage of protecting any future investments from falling prices."

The closing chapters consider depreciation accounting and rate controversies, notably those arising over transcontinental rates and lake-cargo coal rates. The book is therefore, a de-

scriptive chronicle of important regulatory developments since the return of the railroads to private control. Little attempt is made in it to pass judgment on the provisions of the Transportation Act or Interstate Commerce Commission policies thus far developed therefrom. The author has adopted a condensed form of presentation following the convenient outline method wherever possible.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The Book of the Railway, by John R. Hind. In popular rather than technical style, and generously illustrated, this book describes the railways of Great Britain in the first part and sketches the high lights of the railways of the world in the second. The chapters on the Harwich-Zeebrugge and Trällebörg-Sassnitz train ferries, the express trains of Europe, the famous old and famous modern British locomotives, and the railways of India, Africa, Australasia, and the United States, may be of interest. 384 p. Pub. by Collins Clear-Type Press, London, England. 6 shillings.

Consolidation of Railroads—4th Supplement. Continuation of the list of references covering material published from 1927 to August, 1929. 25 p. Pub. by Library, Bureau of Railway Economics, Washington, D. C. Apply.

Recent Changes in Railway Economics, by L. F. Loree. Two addresses by the President of the Delaware & Hudson Company, bringing out some important developments in the most constant thing about transportation—its change. Reduction of waste, containers and sea-trains, factors in competition by pipelines, air and motor transport, problems of accounting, surplus mileage, and structures, and regulation are discussed. 25 p. Pub. by the Delaware & Hudson Co., New York City. Apply.

A Survey of State Laws on Public Utility Commission Regulation in the United States Analyzing the Principal Powers and Jurisdiction of State Public Utility Regulatory Commissions. Jurisdiction, accounting practices and reports, service standards, valuation, rates and rate schedules, complaints and petitions, capitalization, consolidations and mergers, certificates of convenience and necessity, and so on are summarized together with number and selection of commissioners, their terms and removal, and salaries. 16 p. Chart. Pub. by Bonbright & Co., Inc., New York City. Apply.

Wirtschaftsführung und Finanzwesen bei Amerikanischen Eisenbahnen, by Dr. L. Homberger. A study of American railway finance, accounting and administration based on a personal visit to the railways of this country. 103 p. Pub. by Verkehrswissenschaftliche Lehrmittelgesellschaft m.b.H. bei der Deutschen Reichsbahn, Berlin, Germany. Reichsmarks 4.80.

Periodical Articles

L'Automobilisme et les Chemins de Fer, by C. Colson. A study of automobile competition with railways as manifested in various countries. *Revue Politique et Parlementaire*, August 10, 1929, p. 169-182.

Le Conflit Sino-Soviétique et le Chemin de Fer de l'Est Chinois, by G. M. A survey of events of the last two years in Manchuria and their relation to the present trouble over the Chinese Eastern. *Revue Politique et Parlementaire*, August 10, 1929, p. 183-187.

The Prevention of Damage to Fruits and Vegetables, by H. T. Lively. An illustrated article on packing, marking, and loading fruits and vegetables. *Packing and Shipping*, August, 1929, p. 14-15, 37.

Sand and Gravel Industry Important Factor in Operation of Railroads, by V. P. "The railroads transported 108,673,766 tons of our material last year, over 50 per cent of our total production." p. 17. *National Sand and Gravel Bulletin*, August, 1929, p. 17-18.

What the O'Fallon Decision Means, by Samuel O. Dunn. A discussion of the decision of the Supreme Court with a brief history of the valuation movement. *Nation's Business*, September, 1929, p. 27-29, 216-222.

Odds and Ends of Railroading

Hobbies

Lex Crain, of the Southern Pacific, is a passenger brakeman during his working hours, but in his leisure hours he builds violins. He is an expert at it, and some of his instruments are used by renowned musicians.

More Covered Bridges

ST. PAUL, MINN.

TO THE EDITOR:

On page 1387 of the *Railway Age* of June 15, the question is asked—"Are there any more covered railway bridges?" In 1910, the Northern Pacific built two 100-ft. Howe truss spans and covered them with a complete housing of corrugated galvanized iron. One of the spans was removed in 1920 to provide a stronger bridge, but the second span is still in service. Other Howe truss spans built in 1910 had the timber renewed in 1918 and 1926. A third Howe truss span was built in 1925 and a fourth in 1928, both of which were covered with a corrugated galvanized iron housing. All of these timber spans are west of the Cascade mountains in the state of Washington.

M. F. CLEMENTS,

Bridge Engineer, Northern Pacific.

Los Angeles-London in Eight Days!

The Pennsylvania and the Transcontinental Air Transport were two of the transportation mediums which enabled Albert Hitchen of Beverly Hills, Cal., to make a trip recently from Los Angeles to London in eight days, establishing what is believed to be a world's record for speed for the trip. Purchasing ticket No. 1—Los Angeles to London—Mr. Hitchen left Los Angeles on July 8 in the first plane inaugurating this new daily service. He arrived in New York on the Airway Limited on the morning of July 10, and six days later he was in London, having made his trip in exactly eight days. This speed was made possible by the new 48-hour coast-to-coast rail-air service which was inaugurated on July 8. By means of the train and plane hookup, Mr. Hitchen was enabled to cut in half the time it took him to make the trip from London to Los Angeles 20 years ago. The journey from the English capital to the Pacific coast city took Mr. Hitchen 15 days at the beginning of this century, and that time was considered fast.

The Westinghouse Brake in England in 1872

W. E. Sprague, secretary, Canadian Westinghouse Company, sends us the following interesting account from "The Engineer," an English journal, dated August 16, 1872:

"Yesterday an official trial of the air brake, known by the name of the Westinghouse Air Brake, was made on the line of the South-Eastern Railway Company. The trial was entirely of a private character, the party being limited to the officials of the company and a few visitors interested in such matters. The ground selected for the trial was that portion of the line lying between Chiselhurst and Tunbridge, passing Sevenoaks en route. The object of the trip was to ascertain the time occupied and distance run over by the train at different points of the journey, in connection with the action of the brake. After passing Chiselhurst the first experiment commenced. The speed was 40 miles per hour. After the brake had been on for 18 seconds the train was brought to a standstill in a distance of 145 yards, with a falling gradient of 1 in 142. When the speed was only 30 miles per hour the train was arrested in 15 seconds, after running, subsequently to the application of the brake, for a distance of 100 yards, in a falling gradient of 1 in 120. A third and fourth experiment gave similar successful results. In fact, the velocity attained in the last was rather too much for the equanimity of those who were not accustomed to rapid railway travelling. Shoot-

ing out of a long tunnel at the rate of over 60 miles per hour is a little trying to some people. A brief stay was made at Tunbridge, and the party returned to London early in the afternoon. The Westinghouse air brake is well known in America, where it is extensively employed. Judging from the results of yesterday's trial it ought soon to be well known in this country. Not the least tribute to its merit on the occasion in question was the remarks of those who from their continual practice with the ordinary railway brake could well appreciate the value of the proposed substitute."

Railroad Argot

TEXARKANA, TEX.

TO THE EDITOR:

I have read with a great deal of interest the Railroad Talk on page 1478 of your issue of June 22.

Our department has occasion to receive every day from the yard office a consist of cars with commodities and in quite a few instances the mud hop (yard clerk) designates these commodities by a railroad term. As illustration:

Yellow Pine Lumber and Timbers—Louisiana Bananas
Brick—Irish Confetti or Alley Apples
Catalogues—Women's Wish Books
Eggs—Cackle Berries
Wash Boards—Women Tamers
Box Car—Brownie
Water Tank—Tub
Fuel Oil—Soup
Autos—Joy Wagons

A car of gravel is referred to as the little rock special and some of the boys on the line designate an engine running with only a caboose as a horse and buggy. When one of the yard force is off with chills and fever, the malady is referred to as "box car colic".

J. O. HAMILTON,

General Freight Agent, Kansas City Southern.

Fish Travel De Luxe

The accompanying photo shows one of the railway cars which have been specially equipped by the California Fish and Game Commission for the distribution of fish from the various hatcheries to the streams and lakes for planting. An air compressor forces air into an auxiliary tank or reservoir at a pressure of 80 lb. The air passes through a system of coils placed in the bottom of a refrigerator which chills it sufficiently to obviate the use of ice, and maintains a temperature ranging between 48 and 50 degrees. The air then passes through flexible hose into the cans containing the fish. By means of the fish cars, which are really traveling hatcheries, fish are delivered in fine condition with practically no loss to every section of California.



Interior of the Fish Car



FIRE at the station of the Staten Island Rapid Transit at Tottenville, Staten Island (New York City) on September 3, destroyed the station, sheds and other buildings, and six passenger cars; estimated loss \$250,000.

WILLIAM PATRICK of Wood River, Ill., has been awarded a bronze medal of honor, under the Congressional Act of 1905, which provides for such medals in recognition of outstanding feats of bravery in connection with the saving of life on railroads. The medal is awarded by President Hoover for prompt action on February 5, 1929, in saving a little boy from being struck by a train of the Cleveland, Cincinnati, Chicago & St. Louis. Patrick, 18 years old, is employed by the International Shoe Company.

Two Weeks' Work Condensed into Two Days

The Pennsylvania Railroad, on August 30, mailed its usual batch of dividend checks to stockholders—the aggregate amount of the checks being \$11,265,479—and the 150,060 checks were made out by a new process which, it is said, is capable of doing a job of this kind within two days of continuous running. Under the old methods, about two weeks was the usual time required to prepare the dividend checks for mailing. The new machine prints 3600 checks and stubs in one hour, or 60 checks a minute. Women now constitute more than one-half of the 150,000 Pennsylvania stockholders.

Illinois Central to the Public

The Illinois Central, publishes an advertisement in newspapers along its lines this month calling attention to the fact that nine years ago the road began the policy of publishing a message from its president and that since then these advertisements have appeared each month. According to this month's advertisement, "These monthly discussions are intended to take the mystery out of railroading, thereby removing the inevitable results of suspicion, distrust and misunderstanding; to give the public facts upon which to base an intelligent attitude; to work toward co-operation instead of hostility;

to arouse an appreciation of the railroads and of sound economic policies; to create improved morale among railway employees and thus make for the increased efficiency, economy and courtesy of railway service; and to meet the competition of other railroads and of other means of transportation. The reception which this program has had from the patrons and friends of the Illinois Central System is highly gratifying."

Progress on Hudson Bay Railway

Excellent progress is being made on the construction of the Hudson Bay Railway and terminals at Fort Churchill, but the products of Western Canada will not find their way to the markets of the world by this new route for two or three years, according to Col. A. E. Debut, chief engineer of the Department of Railways and Canals, and D. W. McLachlan, engineer in charge of the St. Lawrence Waterways and Hudson Bay Terminals, who have recently returned to Ottawa from an inspection trip over the Hudson Bay system.

Steel was laid into Churchill last spring, but the ballasting will not be completed until the middle of September, and there will be the second and third lifts of the track before the railway is ready to give service to the public. The rails were laid in the winter on top of the snow, and there is much to be done before the line attains perfection. For that reason the public is not being encouraged to ship goods into the Hudson Bay country at the present time.

The golden spike marking the completion of the railway is to be driven next spring by Rt. Hon. George P. Graham, but it will be several years before the docks for the accommodation of ocean-going vessels, the grain elevator and other facilities for the handling of crops and cargoes will be ready. At the present time there are 500 men at work on the harbor, and the dredges are taking an average of 6,000 yd. a day out of the site of the new terminals, but there are hundreds of thousands of cubic yards of material to be excavated and taken away on scows before the construction of the docks can be undertaken. In

the meantime, vessels bringing in supplies transfer their cargoes to lighters. The first boat into Churchill this year arrived there on August 6.

Aeroplanes flying over the region reported today that there is an ice field stretching from Cape Churchill (south of Fort Churchill Harbor) for a distance of sixty miles, but the harbor and straits have been free of ice for some time.

There are 2,500 men at work on the completion of the railway line, a large part of the work being carried out by the Canadian National.

The Canadian Roads in July

An increase of \$36,534 in net earnings during the month of July is shown by the statement of operating results for the Canadian National. During the period from January 1 to the end of July, net earnings also show an increase of \$1,055,104 over the net earnings for the corresponding period of 1928. For the month of July, gross earnings were \$23,363,406, against \$23,291,805 in the same month of last year, an increase of \$71,601.00 or 0.31 per cent. Operating expenses during July, 1929, were \$19,708,424 against \$19,673,357 in the same month of last year and net earnings for July, 1929, were \$3,654,981 against \$3,618,447 for July, 1928.

The operating ratio for July, 1929, was 84.36 per cent, against 84.46 per cent, for the corresponding period of last year.

For the period from January 1 to the end of July, 1929, gross earnings were \$150,508,617 against \$146,505,331 in the corresponding period of 1928, an increase of \$4,003,286 or 2.73 per cent. Operating expenses during the 1929 period were \$125,964,689 against \$123,106,507 in the same period of last year, an increase of \$2,948,181 or 2.40 per cent. Net earnings over the period from January 1 to the end of July, 1929, were \$24,543,927 against \$23,488,823 an increase of \$1,055,104 or 4.49 per cent.

The operating ratio for the 1929 period was 83.69 per cent, as against 83.97 per cent, in the corresponding period of 1928.

Operating net of the Canadian Pacific for the month of July showed an in-

crease of \$193,098 over July of last year, standing at \$3,892,657, as compared with \$3,699,558 in the corresponding month of 1928. By the same comparison, gross earnings showed an increase of \$1,092,389, while operating expenses were higher by \$899,290.

For the seven-month period of the current year ending with July net shows an increase of \$98,191 over the corresponding seven-month period of last year. Gross earnings for the period show an increase of \$5,033,337, while operating expenses were higher by \$4,935,145.

The following table shows the earnings and expenses for the month of July and for the seven-month period ending with July, with comparisons:

JULY			
	1929	1928	Inc.
Gross	\$19,078,500	\$17,986,111	\$1,092,389
Exp.	15,185,843	14,286,553	899,290
Net	\$3,892,657	\$3,699,558	\$193,098
SEVEN MONTHS ENDING—			
	July '29	July '28	Inc.
Gross	\$120,725,252	\$115,691,914	\$5,033,337
Exp.	100,475,764	95,540,618	4,935,145
Net	\$20,249,488	\$20,151,296	\$98,191

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Next meeting, Minneapolis, Minn. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—J. D. Gowin, 112 W. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next meeting, April, 1930, Daytona Beach, Fla.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual convention, September 16-17, 1929, Hotel Fort Garry, Winnipeg, Man.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, 1930, Minneapolis, Minn.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, Supt. Dining Car Service, Monon Route, Chicago. Next meeting, October 8-10, Mount Royal Hotel, Montreal, Canada.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York. Annual convention, September 28-October 4, 1929, Atlantic City, N. J.

AMERICAN RAILROAD MASTER TINNERS', COPPER-SMITHS AND PIPE FITTERS' ASSOCIATION.—C. Borchert, 202 North Hamlin Ave., Chicago.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating. J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section.—R. O. We'lls, Freight Agent, Illinois Central Railroad, Chicago.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.

Protective Section.—J. C. Caviston, 30 Vesey St., New York.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Next convention, Sept. 17-20, 1929, Hotel St. Paul, St. Paul, Minn.

Division II.—Transportation.—G. W. Covert, 431 South Dearborn St., Chicago.

Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering.—E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next meeting March 11-13, 1930, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section.—H. S. Balliet, 30 Vesey St., New York. Stated meeting, September 10-

12, 1929, Atlanta-Biltmore Hotel, Atlanta, Ga.

Division V.—Mechanical.—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual convention, June 18-25, 1930, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section.—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual meeting, September 10-12, 1929, Muchbach Hotel, Kansas City, Mo. Exhibit of Supply Men's Association.

Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual convention, June, 1930, Atlantic City.

Division VII.—Freight Claims.—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Next meeting, June, 1930, Seattle, Wash.

Division VIII.—Motor Transport.—George M. Campbell, American Railway Association, 30 Vesey St., New York, N. Y. Next meeting, November 12-15, Royal York Hotel, Toronto, Canada.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, October 15-17, 1929, Roosevelt Hotel, New Orleans, La. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—E. L. Taylor, Asst. to Exec., Vice-Pres., N. Y., N. H. & H., New Haven, Conn. Next meeting, December 5-6, 1929, Chicago.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 11-13, 1930, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Miss Page Nelson Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Annual convention, September 11-14, 1929, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Secretary: C. C. Ziegler, Greenfield Tap & Die Co., 13 So. Clinton St., Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittlesey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, 30 Church St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 228 N. LaSalle St., Chicago. Annual convention, January 28-30, 1930, Seattle, Wash.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual convention, May, 1930, Richmond, Va.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 413, C. & N. W. Station, Chicago. Annual meeting, October 22-25, 1929, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—E. H. Weaver, Westinghouse Air Brake Co., 80 E. Jackson Blvd., Chicago. Meets with International Railway General Foremen's Association.

BOILER MAKER'S SUPPLY MEN'S ASSOCIATION.—George R. Boyce, A. M. Castle & Co., Chicago. Meets with Master Boiler Makers' Association.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—J. B. Tanner, Jos. E. Nelson & Sons, 3240 So. Michigan Ave., Chicago. Meets with American Railway Bridge and Building Association, October 15-17, 1929.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charon St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, Chicago & Alton, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—F. G. Wiegmann, 720 N. 23rd St., East St. Louis, Ill. Meetings first Tuesday of each month, except July and August, Broadview Hotel, East St. Louis, Ill.

CENTRAL RAILWAY CLUB.—E. F. Ryan (President), Buffalo, Rochester & Pittsburgh Ry., Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—(See Master Car Builders' and Supervisors' Association.)

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit of International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—J. H. Jones, Crucible Steel Company of America, Pittsburgh, Pa.

INTERNATIONAL RAILWAY CONGRESS.—Madrid, Spain, May 5-15, 1930.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—L. G. Plant, 80 E. Jackson Blvd., Chicago. Next meeting, May 6-9, 1930, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn. Annual convention, September 17-20, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—L. R. Pyle, Locomotive Firebox Co., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, New York Central, 138 N. Allen

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White Ducks in a Rolling Mill

These are not laundrymen or dining-car men, but employees of the Ashland (Ky.) shops of the American Rolling Mill Company, where "Safety First" is followed closely by "Neatness Second." Four hundred men work in costumes of this kind.

St., Albany, N. Y. Annual meeting, May 21-24, 1930, William Penn Hotel, Pittsburgh, Pa. Exhibit by Boiler Maker's Supply Men's Association.

MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: A. W. Smullen, C. M., St. P. & P., Chicago. Annual Congress, September 30-October 4, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—E. Sumner (President), Asst. to Gen. Supt. M. P., Penna. R. R., Philadelphia, Pa., Regular meetings, 3rd Friday in month, except June, July and August.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings 2nd Tuesday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual convention, April 30-May 2, 1930, Hotel Roosevelt, New Orleans.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa. Annual meeting, November, 1929, Hotel Stevens, Chicago.

RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.—(See Master Car Builders' and Supervisors' Association.)

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 15-17, 1929, Toronto, Canada.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division 1.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, September 18-20, 1929, Royal York Hotel, Toronto, Ont., Canada.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Exhibit by Track Supply Association. Next convention, Sept. 19-21, 1929, Stevens Hotel, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meet semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, June, September and November. Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—Bradley S. Johnson, W. H. Miner, Inc., Chicago. Meets with A. R. A. Div. V. Equipment Painting Section.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., 80 E. Jackson Blvd., Chicago. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O. Annual meeting, September 24-27, 1929, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—W. J. Dickinson, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Traffic

At a luncheon of the Traffic Club of Chicago on September 11, Charles Barham, vice-president and traffic manager of the Nashville, Chattanooga & St. Louis, will speak on "Footnotes to the History of Southern Transportation."

The nine-day embargo placed on shipments of barley, oats and rye to the Twin Cities, Duluth and Superior on August 23, was removed by the carriers, following a meeting of the joint transportation committee of the Northwest Shippers' Advisory Board on August 29.

The Interstate Commerce Commission, on September 5, issued special permission to certain Southwestern and Mississippi valley railroads to file, on one day's notice, tariffs reducing rates on grain and grain products for export from Kansas City to Louisiana and Texas gulf ports from 30½ to 23½ cents to meet reduction made effective August 15 by the Kansas City Southern. Applications for special permission for reductions from other market points were denied.

Liquor to the amount of 500 bottles was seized by United States Customs Inspectors at St. Albans, Vt., on September 3, while searching the cars of a special train carrying Massachusetts delegates to their homes from St. Paul, Minn., where they had been to attend the convention of the Veterans of Foreign Wars. The train was detained for about one hour in the middle of the night. The report of the Associated Press says that the liquor was found hidden in berths, wash rooms and other nooks of the sleeping cars, none being found in the baggage of the 144 passengers. No one admitted ownership of the liquor and no fines were assessed.

The Chicago, Rock Island & Pacific has re-equipped its Golden State Limited its Rocky Mountain Limited and its Iowa-Nebraska Limited and exhibited some of the new cars at Chicago on September 6. There are 52 Pullman cars, (including parlor cars, combination-section-drawing-room, compartment cars and combination section-observation cars), baggage cars, baggage-smoking cars, smoking-room coaches, chair cars, dining cars and club and observation-club cars, in addition to new locomotives. Following the public exhibit at Chicago, the trains were taken to principal points on the railroad for further exhibition, including Kansas City, Mo., Des Moines, Iowa, Davenport, Omaha, Neb., Lincoln, Denver, Colo. Colorado Springs, Rock Island, Ill. and Moline.

Air and Rail Line to City of Mexico

The Aviation Corporation announces in New York that, beginning September 8, a daily passenger service will be maintained

between New York and Mexico City by way of the New York Central to Cleveland, Ohio; airplane thence to Tulsa, Okla.; then by train of the Missouri-Kansas-Texas to Dallas, Tex.; Dallas to Brownsville, Tex., by airplane; thence, after an overnight stop, by the Mexican Aviation Corporation to destination. This trip is calculated to require 98 hours, 25 minutes; but on the northbound trip, with the stop cut out, it is planned to make the time 67 hours, 15 minutes.

Relation of Freight Revenue to Value of Commodities

The Interstate Commerce Commission has made public a report compiled by its Bureau of Statistics showing, for each of the freight commodity classes for which statistics are reported by Class I railways, the revenue received by the railways in comparison with the market value of the commodities, based on wholesale prices obtained from various sources relating as nearly as practicable to the close of the year 1928. The average percentage for all commodities is given as 7.08, the average freight revenue per ton being \$3.76 and the value at destination \$53.08 per ton.

Advisory Board Meetings in September

The following regional advisory boards will meet in September: The Allegheny Regional Advisory Board on September 12, at Canton, Ohio; the Pacific Coast Transportation Advisory Board on September 13 at Los Angeles, Cal.; the Trans-Missouri-Kansas Shippers' Advisory Board on September 18 at St. Louis, Mo.; the Pacific Northwest Advisory Board on September 20 at Seattle, Wash.; the Southwest Shippers' Advisory Board on September 26 at New Orleans, La; and the New England Shippers' Advisory Board on September 27 at Poland Springs, Me.

New Frisco Train Between St. Louis and Wichita

The St. Louis-San Francisco has put on a new train, the Air Capital Limited, between St. Louis, Mo., and Wichita, Kan. The train will carry chair cars, Pullman cars, dining cars and club cars on a schedule bettering present service by more than three hours. Known as No. 11, the "Air Capital Limited" will leave St. Louis at 8 p.m., arriving in Wichita at 11:15 the next morning. This train also carries a Joplin sleeper and the Wichita sleeper, formerly carried on the Bluebonnet. Returning, the "Air Capital Limited" operates as train No. 302, leaving Wichita at 9 p.m. arriving in St. Louis at 11:35 a.m.

The schedule of train No. 5 from St. Louis to Springfield and points in Oklahoma will be shortened one hour. Service between Kansas City, Mo., and Oklahoma points on Frisco trains 111

and 117 is also greatly improved. No. 117 will run from Kansas City to Tulsa in one hour less time.

Statistics of Perishable Freight Facilities

The Pennsylvania has issued for general distribution a 40-page pamphlet 8½ in. by 11 in. containing a large amount of information concerning the business of transporting fresh fruits and vegetables; data of a kind never before gathered in a single publication. The main feature of the pamphlet is a list showing the shipping seasons of various fresh fruits and vegetables, together with notes on the territories where shipments originate and dates when the shipping season opens and closes; and on the principal consuming districts. For example, apples (the first commodity named) originate at a large number of stations on the Pennsylvania System, in six or more states; and the different shipping seasons range from June 15 to October 1. This list, filling 20 pages, is supplemented by a three page list arranged chronologically showing dates that the shipping season opens. The pamphlet has also information, with large illustrations, concerning the icing stations on the Pennsylvania System. There is also a list of cities, beginning with Akron and ending with Zanesville, showing facilities for delivery of perishable traffic.

New Forwarding Company to Operate on P. R. R.

A new forwarding company, the National Freight Company, has been organized with headquarters at 33 Rec-tor street, New York. The company, which is reported to be controlled by the Pennroad Corporation will offer general freight forwarding service, to be operated in conjunction with the Pennsylvania Railroad and other railroad lines. Every large city and center of business and industry in the United States will, it is said, be served. Not only the standard box car but also the recently developed container car will be utilized in its operations.

The officers of the company are L. C. Strohm, president; A. D. Davis, vice-president; Joseph W. Nichol, secretary and treasurer; and I. Foster Murphy, auditor. Mr. Strohm was formerly chairman of the board of the United States Freight Company, while Mr. Davis has served as Vice President of the Universal Carloading & Distributing Co.

Arrangements are being completed by the company for the lease of station and warehouse facilities in the larger cities throughout the country. These buildings will be especially prepared for the accommodation of merchandise and container freight and modern freight handling devices will be installed.

If patrons so desire the company will provide a door-to-door service for their shipments, calling for and delivering the freight by motor truck.

Equipment and Supplies

Locomotives

THE NASHVILLE, CHATTANOOGA & ST. LOUIS is inquiring for five mountain type locomotives.

New York Central Buys 35 Oil-Electric Switchers

The New York Central has ordered 35 oil-electric switching locomotives for use in its West Side yards in New York City. This is the largest order, more than \$4,000,000, ever placed in this country for oil-electric power. These locomotives will be equipped with 300-hp. Ingersoll-Rand oil engines and 200 kw. generators of the General Electric Company. These locomotives will be assembled by the American Locomotive Company. They may be operated by power furnished by an Exide storage battery of 219 cells weighing 17 tons; from the storage batteries and engine generator combined; from the third rail, or from an overhead collector. The fuel tanks have a capacity of 200 gal. which is sufficient to operate the engine at full load for about 10 hours.

Freight Cars

THE NORFOLK & WESTERN is asking for prices on the rebuilding of 1,000 steel hopper cars.

THE SOUTHERN PACIFIC, Texas lines, are inquiring for replacement parts to rebuild 380 box cars.

THE GULF COAST LINES are inquiring for miscellaneous parts for repairs to several ballast and box cars.

THE CHICAGO & EASTERN ILLINOIS has ordered 500 gondola cars from the Mt. Vernon Car Manufacturing Company.

THE WABASH will construct 100 hopper car bodies for the Ann Arbor in its own shops. Inquiry for this equipment was reported in the *Railway Age* of August 3.

THE BESSEMER & LAKE ERIE has ordered 25 gondola cars of 70 tons' capacity from the Greenville Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of August 3.

Passenger Cars

THE TIENTSIN PUKOW of China is inquiring for 67 underframes and 134 trucks for passenger cars.

THE NEW YORK, NEW HAVEN & HARTFORD is now inquiring for two, five or twenty rail motor cars.

THE BOARD OF TRANSPORTATION OF NEW YORK CITY has awarded a contract for the construction of 300 steel passenger cars for subway service to the American Car & Foundry Company. This latter

was the lowest bidder on this equipment, its bid being \$8,708,927. The Westinghouse Electric & Manufacturing Company received a contract for 610 motors and controls for the cars; price \$2,532,470.

Machinery and Tools

THE NEW YORK CENTRAL is inquiring for a 25-ton locomotive crane.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for two axle lathes.

Signaling

THE INTERBOROUGH RAPID TRANSIT COMPANY, New York City, has ordered from the Union Switch & Signal Company material for the installation of automatic block signals on its Jerome Avenue line; 100 color-light signals, 100 automatic train stops and other material.

THE DETROIT & Ironton has contracted with the Union Switch & Signal Company for the installation of automatic interlockings at Riga, Mich., and Metamora, Ohio; and highway crossing signals, flashing light, at 13 locations on the new Durban-Malinta cutoff. The order includes color-light signals, semaphore signals with smashboards, and 25 highway crossing signals, type HC-5; also relays, rectifiers and other apparatus.

Contracts for New York City Subways

The Board of Transportation, New York City, on August 31, let to the General Railway Signal Company and the Union Switch & Signal Company, contracts for the signal equipment of the Eighth Avenue subway, which is now in the course of construction and is expected to be completed in 1931. Each of these companies, the General and the Union, had declined to bid for the whole contract unless at least 28 months could be allowed for the work and the city therefore felt obliged to separate the project into two contracts, and each agrees to finish its share within 18 months.

The General has the contract for five sections from Fulton street, northward, to 103rd street; its bid was \$2,475,000. The Union has the contract for five sections from 103rd street to the Harlem River, including yards at 207th street; bid \$2,903,400.

Miscellaneous

THE BOARD OF TRANSPORTATION OF NEW YORK CITY has awarded a contract to the General Electric Company for the furnishing and equipping of six substations in connection with its Manhattan subway project. The contract involves \$2,612,546.

Supply Trade

The Bates and Rogers Construction Company has moved its Chicago office to 1745 Conway building, 111 West Washington street.

The Crane Company, Chicago, will construct a one-story plant addition, 120 ft. by 220 ft., to cost \$110,000 in that city.

Edward E. Schlesinger, chief draftsman of the Union Metal Products Company, has been promoted to mechanical engineer to succeed **N. C. Thalheimer**, who died on August 16 after a short illness.

C. B. Leeser, comptroller of the **New York Air Brake Company** has been elected vice-president while retaining also the office of comptroller. A photograph and sketch of Mr. Leeser appeared in the *Railway Age* of August 31, but because of an error in copying Mr. Leeser's name was misspelled throughout the item.

The Geo. D. Whitcomb Company, Rochelle, Ill., has started work on the construction of a new factory unit to provide facilities for the erection of large oil-electric locomotives of from 20 to 100 tons. Two cranes, one of which will be of 50-ton capacity will serve this new erection bay. Another addition to its manufacturing department is to be started soon.

The Rome Iron Mills, Inc., have leased their plant at Rome, New York, to the **Wrought Iron Company of America**. The latter will retain the Rome Iron Mills organization and continue the output of its products.

The Harnischfeger Corporation, Milwaukee, Wis., has placed the general contract for the construction of a two-story addition to its administration building with **Walter W. Oefflein, Inc.**

The **General Electric Company** will on October 1 consolidate its 14 wholesale distributing corporations into the **General Electric Supply Corporation** of Delaware. No change in ownership is involved but the consolidated company will be able to supply equipment and apparatus through any one of 76 houses through the interchangeability of stocks. **C. E. Patterson** will be president and **Gerald Swope**, president, of the General Electric Company, will be chairman.

Byron M. Cheney has resigned as district sales manager of the **Verona Tool Works**, with headquarters at Chicago, to devote his time to personal interests. **Porter L. Laughlin**, formerly district sales manager for this company at Chicago, has been re-appointed to this position to succeed Mr. Cheney.

Blake C. Hooper has been appointed sales manager of the Baker Industrial Truck division of the **Baker-Raulang Company**, Cleveland, Ohio. Mr. Hooper has had wide experience in the material handling field. In addition, he is a mechanical engineering graduate of the **Armour Institute of Technology**, Chicago. For approximately nine years prior to entering the industrial truck field, Mr. Hooper served in various engineering capacities for the **Chicago & Alton**, **Illinois Central** and the **Rock Island**. He entered the industrial truck business in 1916 as a manufacturer's



Blake C. Hooper

representative, with headquarters at St. Paul, Minn. In 1921 he was appointed Northwest representative of the **Baker-Raulang Company**. He was advanced to the position of manager of railroad sales in February, 1927, which position he held at the time of his recent appointment. In addition to his new duties as sales manager of the Baker Industrial Truck division, Mr. Hooper will continue to have charge of the company's railroad department.

Trade Publication

GLOBE SEAMLESS STEEL TUBES.—A well-illustrated, 13-page booklet recently issued by the **Globe Steel Tube Company**, 1345 Burnham street, Milwaukee, Wis., outlines in a comprehensive and interesting way the manufacture of Globe seamless steel tubes. Considerable space is devoted both to the equipment and production processes, from the piercing of the high-grade open-hearth billets to the testing of the finished seamless tubes. Much of the tubing described in this booklet is used in locomotive construction, but it also has many applications in automotive, marine, electrical and constructional work. Two illustrations in the latter part of the booklets show the tension and the torsion testing machines and the completely-equipped test laboratory where raw material is checked and the tubing rechecked at each stage of production in an effort to secure maximum uniformity and reliability.

Construction

CENTRALIA TERMINAL.—This company has applied to the Interstate Commerce Commission for authority to acquire one mile of line and construct 2½ additional miles in Lewis county, Washington.

CHESAPEAKE & OHIO.—A contract has been awarded to **Boxley Bros. Co., Inc.**, Orange, Va., for the construction of a fill to eliminate a bridge at Maysville, Ky., at an approximate cost of \$221,000.

ILLINOIS CENTRAL.—Plans for the construction of a passenger terminal at New Orleans, La., have been approved by the Louisiana Public Service Commission.

MISSOURI PACIFIC.—This company is contemplating the construction of a viaduct across Sixth street and the re-grading of its tracks at Little Rock, Ark.

MISSOURI PACIFIC.—A contract for the construction of interlocking towers at Van Buren, Ark., and Sallisaw, Okla., and stock pens, a hay barn and office building at Texarkana, Ark., has been let to **J. H. Reddick**, Fort Smith, Ark. The interlocking towers will be of brick construction, each 24 ft. by 15 ft., while the stock yard will have outside dimensions of approximately 717 ft. by 58 ft.

PENNSYLVANIA.—Bids are being accepted for the construction of a passenger station, 80 ft. by 41 ft. at Gary, Ind., to cost approximately \$75,000.

ROSWELL & CORPUS CHRISTI HOLDING COMPANY.—This company has been incorporated in Texas, with headquarters at Houston, to construct a railroad between Roswell, N. M., and Corpus Christi, Tex., about 600 miles. Two routes are under consideration, one which would cross the Texas & Pacific at Odessa, Tex., the Kansas City, Mexico & Orient at Sonora, the Southern Pacific at Pearsall and the other which would intersect the Texas & Pacific at Midland, Tex., and the Southern Pacific at Hondo. Plans for the new line have been submitted by **J. N. Miller**, former general manager of the St. Louis, Brownsville & Mexico.

SOUTH PLAINS & SANTA FE.—Examiner **Haskell C. Davis** of the Interstate Commerce Commission has recommended in a proposed report that the commission grant this company's application for a certificate for the construction of an extension from Seagraves to Lovington, Tex., 46 miles, but that it deny the application as to a proposed branch line extending southerly for 43.5 miles.

TEXAS-NEW MEXICO.—Examiner **Haskell C. Davis** of the Interstate Commerce Commission has recommended in a proposed report that the commission issue a certificate for the construction by this company, a subsidiary of the Texas & Pacific, of a line from the Texas-New

Mexico state line to Lovington, N. M., 70 miles.

WYOMING-MONTANA.—This company has voted the issuance of \$15,000,000 of bonds for the purpose of constructing the Wyoming North & South between Craig, Colo., and Casper, Wyo., and between Miles City, Mont., and Salt Creek, Wyo. The proposed railroad would utilize the North & South Railway between Casper and Salt Creek, about 40 miles, and would connect with the Denver & Salt Lake at Craig and with the Chicago, Milwaukee, St. Paul & Pacific and the Northern Pacific at Miles City. Hugh Lee Kirby, president of the holding company has announced that an application will be made immediately to the Interstate Commerce

Commission for a certificate of convenience and necessity for the construction.

YANKTON, NORFOLK & SOUTHERN.—S. S. Roberts, assistant director of the Bureau of Finance of the Interstate Commerce Commission, has recommended in a proposed report that the commission deny this company's supplemental application for a certificate for an extension from Pierce to Norfolk, Neb., 13.5 miles, but that the record in the case be held open for 60 days for the negotiation of a contract for trackage rights over the line of the Chicago & Northwestern. The commission had authorized the construction of a line from Yankton, S. D., to Pierce, Neb., but had suggested that the company seek to obtain trackage rights to Norfolk.

Railway Finance

BALTIMORE & OHIO.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to pledge under its general mortgage \$1,483,000 of its Toledo-Cincinnati division first lien and refunding mortgage 6 per cent bonds.

BALTIMORE & OHIO.—Bonds.—Several subsidiaries of this company have applied to the Interstate Commerce Commission for authority to issue bonds to be delivered to the parent company in reimbursement of capital expenditures as follows: Schuylkill River East Side, \$702,000; B. & O. in Pa., \$644,000; Coal & Coke, \$95,000; B. & O. S. W., \$4,029,500; Washington County, \$4,000; B. & O. Chicago, \$848,000; Pittsburgh Junction, \$21,500; Quemahoning Branch, \$35,000.

CHICAGO, BURLINGTON & QUINCY.—Control of North Platte Valley.—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the lines of the North Platte Valley in Scotts Bluff, Nebr. This would renew a lease made in 1920 which has now expired.

COLORADO & SOUTHERN.—Control of Colorado Railroad.—This company has applied to the Interstate Commerce Commission for authority to renew its lease of the Colorado Railroad, which forms the main line of the C. & S. system from the Texas-New Mexico state line northward to Wyoming.

FLINT RIVER & NORTHEASTERN.—Bonds.—The Interstate Commerce Commission has authorized this company to issue \$125,000 of first mortgage bonds bearing interest at 6 per cent to mature in 1949 to be exchanged for a similar issue which matured on July 1.

KANSAS & SIDELL.—Control of Casey, Kansas.—The Interstate Commerce Commission has authorized this company to acquire control by lease of the Casey & Kansas, a 20-mile line in eastern Illinois.

LOUISVILLE & NASHVILLE.—Bonds.—This company has applied to the Interstate Commerce Commission for authority

for the authentication and delivery of \$9,779,000 of first and refunding mortgage 4½ per cent bonds, Series C, to reimburse the treasury for expenditures for additions and betterments.

NATIONAL OF MEXICO.—Deficit.—The total deficit of this company now totals \$20,000,000, according to reports presented at the National Transportation Convention in Mexico City, as reported in the Wall Street Journal. It is further stated that the continuance of this deficit was laid to the failure to reduce operating expenses as recommended in a report made by Sir Henry Thornton, chairman of the Canadian National, in 1927, which report has never been made public. The convention was made up of representatives of a number of chambers of commerce which advocated an increase in operating efficiency to the end that rates might be reduced.

SOUTHERN PACIFIC.—Control of Nevada-California-Oregon.—The Interstate Commerce Commission has authorized this company to acquire control by lease of the Nevada-California-Oregon, which extends from a connection with the S. P.'s Fernley branch at Wendel, Calif., to Lakeview, Ore., 155 miles. The Southern Pacific already controlled the line by stock ownership.

WASHINGTON WESTERN.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon as to interstate and foreign commerce its line from Machias, Wash., to Woodruff Station, 11.2 miles.

Dividends Declared

Chesapeake Corporation.—\$.75, quarterly, payable October 1 to holders of record September 6.
New York, New Haven & Hartford.—Common, \$1.25, quarterly, payable October 1 to holders of record September 6.
Pittsburgh & West Virginia.—Common, \$1.50, quarterly, payable October 31 to holders of record October 15.

Average Prices of Stocks and of Bonds

	Sept. 3	Last week	Last year
Average price of 20 representative railway stocks.	164.06	159.99	124.24
Average price of 20 representative railway bonds.	89.53	89.73	93.62

Officers

Operating

Thomas J. Kane has been appointed trainmaster of the Fargo division of the Northern Pacific, with headquarters at Staples, Minn.

A. W. Stokes, chief clerk to the car accountant of the Illinois Central, has been promoted to car accountant, with headquarters at Chicago.

Ben Hund, assistant trainmaster of the Louisville & Nashville at Louisville, Ky., retired from active duty on September 1, after more than 51 years in the service of that railway.

The position of maintenance assistant to the general manager of the St. Louis-San Francisco was abolished on September 1, and **D. E. Gelwix**, who held the position, has been assigned to other duties.

M. T. Skewes, assistant superintendent on the Chicago, Milwaukee, St. Paul & Pacific, at Minneapolis, Minn., has been promoted to superintendent of the River and Iowa Minnesota divisions, with headquarters at the same point, succeeding **L. T. Johnston**, deceased.

C. J. Stephenson, assistant to the general manager of the St. Louis-San Francisco with headquarters at Springfield, Mo., has been promoted to assistant general manager with the same headquarters and placed in charge of the Second district, following the creation of two districts for operating purposes. **M. M. Sisson**, assistant general manager with headquarters at Springfield has



C. J. Stephenson

been placed in charge of the First district. **Claude P. King**, assistant chief clerk to the general manager succeeds Mr. Stephenson. The creation of two operating districts, each under the direction of an assistant general manager, is due to steadily increasing traffic and a consequent increase in operating problems. The first district includes the Northern, Southern and River divisions and the Kansas City, Memphis and Bir-

mingham terminals while the second district includes the Eastern, Central, Southwestern and Western divisions, and the St. Louis, Springfield and Tulsa terminals. On July 1, 1899, Mr. Stephenson, then a boy of 17, entered the employ of the St. Louis-San Francisco as a clerk in the office of the superintendent of machinery at Springfield. During the next ten years he worked on various desks in the office of the superintendent of motive power, and in 1909 was promoted to chief clerk to the shop superintendent at the time the Frisco opened its new \$1,600,000 shops in Springfield. He became assistant chief motive power clerk on January 1, 1911, and was again promoted to special representative of the general manager in February, 1912. In 1913 he became assistant chief clerk to the general manager, and in February, 1914, he was appointed chief clerk to the general superintendent of the Frisco's Second operating district. On March 1, 1917, he became chief clerk to the assistant general manager and in July, 1918, he became chief clerk to the general manager. On March 1, 1920, when the railroads were returned to their owners following federal control, he became assistant to the general manager at Springfield, the position he held at the time of his recent promotion.

Traffic

William Hammersley, freight agent for the Pennsylvania, with headquarters at Philadelphia, Pa., has retired from active duty after more than 57 years of continuous service with that road.

Shelby A. Robert, superintendent of the West Tennessee experiment station at Jackson, Tenn., has been appointed development director of the Gulf, Mobile & Northern, effective October 1.

C. V. Gallaher, assistant general freight agent of the Minneapolis, St. Paul and Sault Ste. Marie has been promoted to assistant freight traffic manager with headquarters as before at Chicago.

J. M. Horn, general freight agent of the Canadian National with headquarters at Vancouver, B. C. has been promoted to assistant freight traffic manager with headquarters at Winnipeg, Man., and is succeeded by **J. M. Macrae**, assistant general freight agent with headquarters at Winnipeg.

I. H. Wente, commercial agent for the Mobile & Ohio at Atlanta, Ga., has been promoted to assistant general freight agent, with headquarters at St. Louis, Mo., succeeding **Ray L. Depew**, who at his own request because of ill health, has been appointed special traffic representative at St. Louis. **Arthur A. Appel** has been appointed industrial agent, with headquarters at St. Louis.

W. K. Adams, assistant general passenger agent of the Minneapolis & St.

Louis, has been promoted to general passenger agent in charge of passenger rates and solicitation, with headquarters as before at Minneapolis, Minn. **J. R. Shannon**, general freight and passenger agent, with headquarters at Minneapolis, has been appointed general freight agent in charge of freight solicitation and the position of general freight and passenger agent has been abolished.

Walter Hatley, assistant general freight agent on the Canadian National at Winnipeg, Can., has been promoted to general freight agent, with headquarters at the same point, to succeed **A. E. Rosevear**, who has been assigned to other duties until December 15, when he will retire under the pension regulations of the Company. **F. G. Adams**, assistant general freight agent at Winnipeg, will have charge of rates and divisions. **C. E. Truscott**, chief clerk of the tariff bureau at Winnipeg, has been promoted to chief of the tariff bureau, with headquarters at the same point.

Engineering, Maintenance of Way and Signaling

A. B. Harris, locating engineer of the Illinois Central, with headquarters at Chicago, has retired from active duty after 27 years in the service of that company.

Purchases and Stores

Ernest B. Rockwood has been appointed general storekeeper of the Boston & Albany, with headquarters at West Springfield, Mass. **Michael L. Sheehan** has been appointed material supervisor at West Springfield, Mass., reporting to the general storekeeper and **George E. Johnson** has been appointed storekeeper at that point.

Mechanical

F. W. Schultz, mechanical superintendent of the Kansas City, Mexico & Orient, has been appointed superintendent of shops of the Atchison, Topeka & Santa Fe, with headquarters as before at Wichita, Kan.

F. R. Butts, assistant division master mechanic of the Hannibal division of the Chicago, Burlington & Quincy, with headquarters at Brookfield, Mo., has been promoted to master mechanic of the Creston and West Ottumwa divisions, with headquarters at Creston, Iowa. **H. E. Felter** has been appointed assistant master mechanic of the Hannibal division, succeeding Mr. Butts.

Obituary

J. T. Riggs, general agent of the weighing department of the Atchison, Topeka & Santa Fe, with headquarters at San Francisco, Cal., died at Los Angeles, Cal., on August 28, at the age of 70 years.

Robert I. Harris, auditor of disbursements of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., from 1919 to 1926, who had been on a leave of absence because of ill health for three years, died at Redlands, Cal., on August 17.

Nathaniel M. Rice, vice-president in charge of purchases and stores of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., died at a hospital in that city on September 4. Mr. Rice had been on a leave of absence on account of ill health since early in June. Mr. Rice was born on December 28, 1863, at Rome City, Ind., and was educated in the public schools of that city. He entered railway service in May, 1887, as brakeman on the Gulf, Colorado & Santa Fe, later serving in several positions in the transportation and stores department of the same road. From April, 1901, to April, 1903, he was assistant general storekeeper of the



Nathaniel M. Rice

Atchison, Topeka & Santa Fe Coast Lines, then being appointed general storekeeper of the same road in charge of material, fuel and stationery. He held this position until November 13, 1913, when he was appointed general purchasing officer of the St. Louis-San Francisco, with headquarters at St. Louis, Mo. From 1915 to 1916, he was third vice-president in charge of purchases, and from 1916 to 1919, he was second vice-president of the same road. Mr. Rice served as vice-president of the Pierce Oil Corporation from 1919 to 1920, then becoming general purchasing agent of the New York, New Haven & Hartford, and also of the Central New England and New England Steamship Company. In June, 1925, Mr. Rice was promoted to the position of vice-president in charge of purchases and stores, the position he held at the time of his death.

THE BALDWIN LOCOMOTIVE WORKS has received from the United States Government a sum in excess of \$2,000,000 in the shape of a refund on taxes paid in the years 1912 to 1928.